Winter Edition 1929

AMAZING STORIES QUARTERLY

HUGO GERNSBACK
EDITOR

Stories by
Captain S. P. Meek, U. S. A.
Clare Winger Harris
Hugo Gernsback

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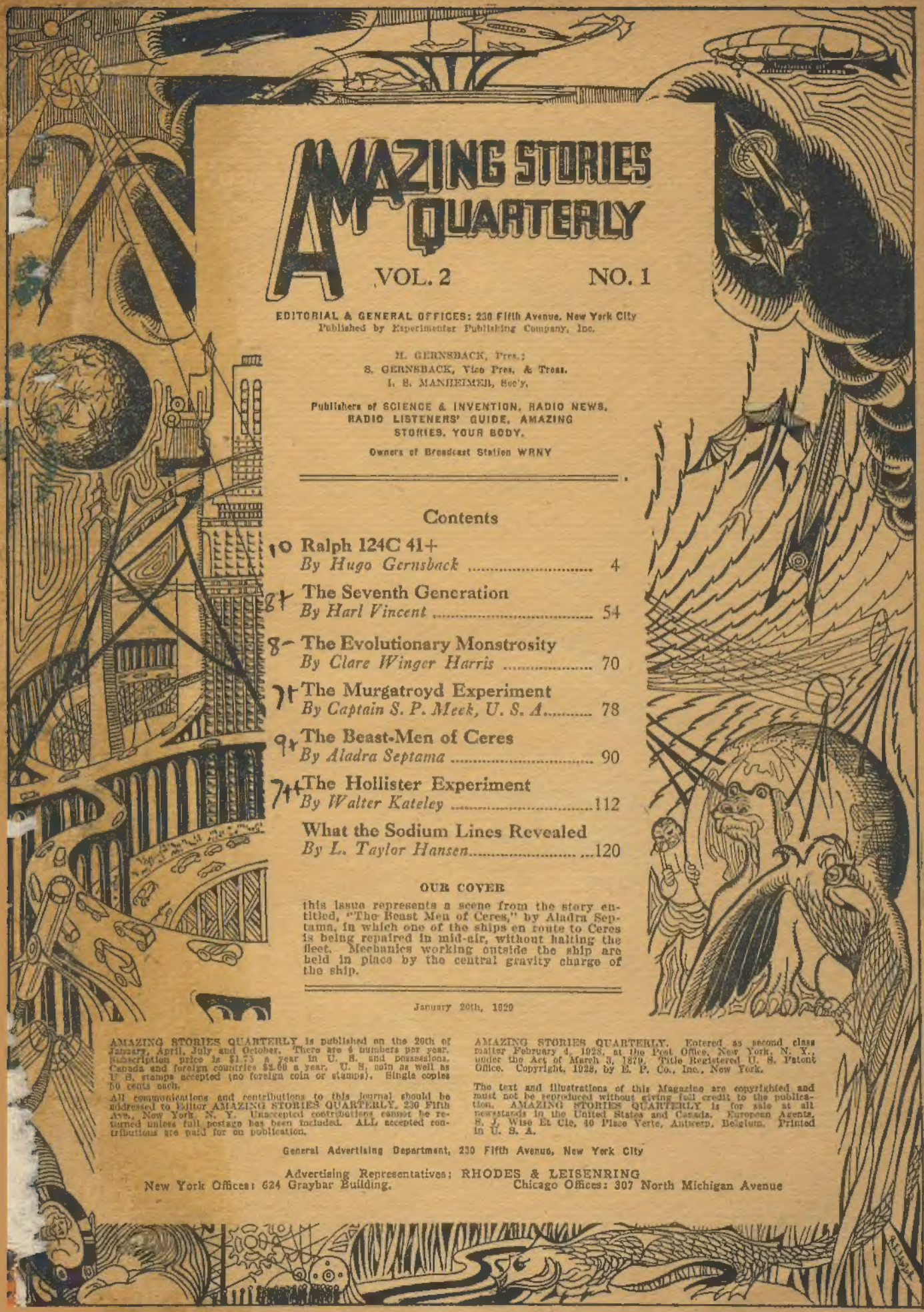

AMAZING STORIES QUARTERLY

VOL. 2 NO. 1

EDITORIAL & GENERAL OFFICES: 230 Fifth Avenue, New York City
Published by Experimenter Publishing Company, Inc.

H. GERNSBACK, Pres.;
S. GERNSBACK, Vice Pres. & Treas.
I. S. MANHEIMER, Sec'y.

Publishers of SCIENCE & INVENTION, RADIO NEWS, RADIO LISTENERS' GUIDE, AMAZING STORIES, YOUR BODY.

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OUR COVER

this issue represents a scene from the story entitled, "The Beast Men of Ceres," by Aladra Septama, in which one of the ships en route to Ceres is being repaired in mid-air, without halting the fleet. Mechanics working outside the ship are held in place by the central gravity charge of the ship.

January 20th, 1929

AMAZING STORIES QUARTERLY is published on the 20th of January, April, July and October. There are 4 numbers per year. Subscription price is $1.75 a year in U. S. and possessions. Canada and foreign countries $2.00 a year. U. S. coin as well as U. S. stamps accepted (no foreign coin or stamps). Single copies 50 cents each.

All communications and contributions to this journal should be addressed to Editor AMAZING STORIES QUARTERLY, 230 Fifth Ave., New York, N. Y. Unaccepted contributions cannot be returned unless full postage has been included. ALL accepted contributions are paid for on publication.

AMAZING STORIES QUARTERLY. Entered as second class matter February 4, 1928, at the Post Office, New York, N. Y., under the Act of March 3, 1879. Title Registered U. S. Patent Office. Copyright, 1928, by E. P. Co., Inc., New York.

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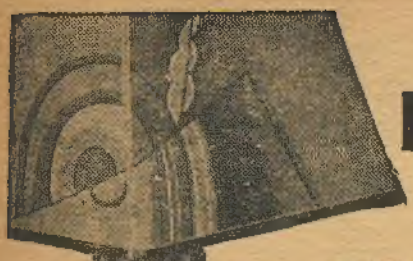
General Advertising Department, 230 Fifth Avenue, New York City

Advertising Representatives: RHODES & LEISENRING
New York Offices: 624 Graybar Building. Chicago Offices: 307 North Michigan Avenue



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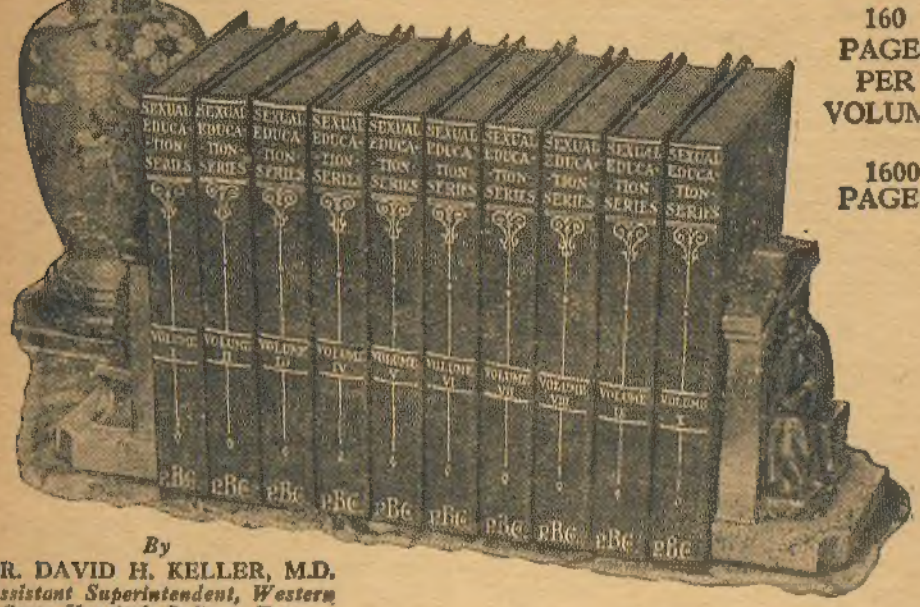

By
DR. DAVID H. KELLER, M.D.
Assistant Superintendent, Western State Hospital, Bolivar, Tenn.

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While writing these books Dr. Keller wrote a long letter to the publishers, part of which follows:

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Vol. 2
No. 1

WINTER
1929

AMAZING STORIES QUARTERLY

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Frederick Dundas Stewart

NOTHING is more stimulating or more precious than a new idea. Upon first grasping it, we marvel at the originality of the mind that conceived it; though frequently, we are a trifle chagrined that its oft-times obvious simplicity had never occurred to us! We then experience a glow of intellectual stimulation where the imagination weaves the basic thought into numerous captivating possibilities and fancies.

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Therefore, in examining our belief in it, we are led to the conviction that it has a very definite mission, which nothing else can adequately fulfill; a conclusion which convinces us that Scientifiction is not only here to stay, but is bound to acquire an increasing number of adherents.

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The Next Issue of the Quarterly Will Be on the Newsstands April 20th

RALPH 124C 41+

By Hugo Gernsback

A Romance of the Year 2660

RALPH 124C 41 + first appeared as a serial in the author's first magazine, "Modern Electrics," in 1911. This magazine was the first devoted exclusively to radio activities. At the time the story was written the word "radio" had not yet come into use. We were at that time still using the term "wireless." It has been necessary, in view of scientific progress since the time the story was written, and in order to present the book to a much wider reading public, to re-write much of the story and to make many changes. Yet, the ideas and conceptions embodied in the original manuscript have been retained.

The author appreciates that many of the predictions and statements appear to verge upon the fantastic. This was the case with Jules Verne's submarine "Nautilus" in his famous story "Twenty Thousand Leagues Under the Sea." Verne's conception of the submarine was declared utterly ridiculous. Nevertheless, the prophecy was fulfilled. In fact, Verne's imagination hit far below the mark in what was actually accomplished by science since the book was written.

Lest you think that the author has gone too far into the realms of pure imagination, place yourself in the position of your great-great-grandfather imagining that he is told about locomotives, steamships, X-rays, telegraphs, telephones, phonographs, electric lights, radio broadcasting, and the hundred other commonplaces of our lives today. Would he not have condemned such predictions as the height of folly and absurdity?

So with you. You are in the same position with respect to the prophecies in this work. Your descendants picking up this book 750 years hence—or at the time in which this story is laid—will ridicule the author for his lack of imagination in failing to conceive the obvious developments in the first half of the next century.

It may be of passing interest to note that several of the predictions made by the author when this story was written have already become verities. Notable among these is what the author termed the Hypnobioscope, the purpose of which is to impart knowledge while asleep. The author was greatly astonished to read the results obtained by J. A. Phinney, Chief Radioman, U. S. Navy, who, having tried the system himself, in 1923, introduced it at the Pensacola, Florida, Naval Training School. Here one may see naval students stretched out on long benches asleep with casket-like coverings over their heads. The caskets contain two telephone receivers through which radio code is sent to the sleeper. It has been demonstrated that the sleeping student can be taught code faster in this way than by any other means, for the sub-conscious self never sleeps. Poor students have passed examinations after being taught by this method.

The scientific conception or vision of the world of 750 years hence, represents the author's projection of the scientific knowledge of today. Scientific progress is moving at an accelerating pace, and if that pace is maintained, it seems fair to assume that the conceptions herein described will, 750 years hence, be found to have fallen far short of the actual progress made.

The Avalanche

AS THE vibrations died down in the laboratory the big man arose from the glass chair and viewed the complicated apparatus on the table. It was complete to the last detail. He glanced at the calendar. It was September 1st in the year 2660. Tomorrow was to be a big and busy day for him, for it was to witness the final phase of the three-year experiment. He yawned and stretched himself to his full height, revealing a physique much larger than that of the average man of his times and approaching that of the huge Martians.

His physical superiority, however, was as nothing compared to his gigantic mind. He was Ralph 124C 41 +, one of the greatest living scientists and one of the ten men on the whole planet, earth, permitted to use the plus sign after his name. Stepping to the Telephot on the side of the wall he pressed a group of buttons and in a few minutes the faceplate of the telephot became luminous, revealing the face of a clean shaven man about thirty, a pleasant but serious face.

As soon as he recognized the face of Ralph in his own telephot he smiled and said, "Hello, Ralph."

"Hello Edward, I wanted to ask you if you could come over to the laboratory tomorrow morning. I have something unusually interesting to show you. Look!"

He stepped to one side of his telephot so that his friend could see the apparatus on the table about ten feet from the telephot faceplate.

Edward came closer to his own faceplate, in order that he might see further into the laboratory.

"Why, you've finished it!" he exclaimed. "And your famous—"

At this moment the voice ceased and Ralph's faceplate became clear. Somewhere in the Tele-service company's central office the connection had been broken.

After several vain efforts to restore it, Ralph was about to give up in disgust and leave the Telephot, when the instrument began to glow again. But instead of the face of his friend there appeared that of a vivacious beautiful girl. She was in evening dress and [illegible]d her on a table stood a lighted lamp.

Startled at the face of an utter stranger, an unconscious Oh! escaped her lips to which Ralph quickly replied:

"I beg your pardon, but 'Central' seems to have made another mistake. I shall certainly have to make a complaint about the service."

Her reply indicated that the mistake of "Central" was a little out of the ordinary, for he had been swung into the Intercontinental Service as he at once understood when she said, *"Pardon, Monsieur, je ne comprends pas!"*

He immediately turned the small shining disk of the Language Rectifier on his instrument till the pointer rested on *"French."*

"The service mistakes are very annoying." he heard her say in perfect English. Realizing, however, that she was hardly being courteous to the pleasant looking young man who was smiling at her, she added, "But sometimes Central's 'mistakes' may be forgiven, depending, of course, on the patience and courtesy of the other person involved."

This, Ralph appreciated, was an attempt at mollification, with perhaps a touch of coquetry.

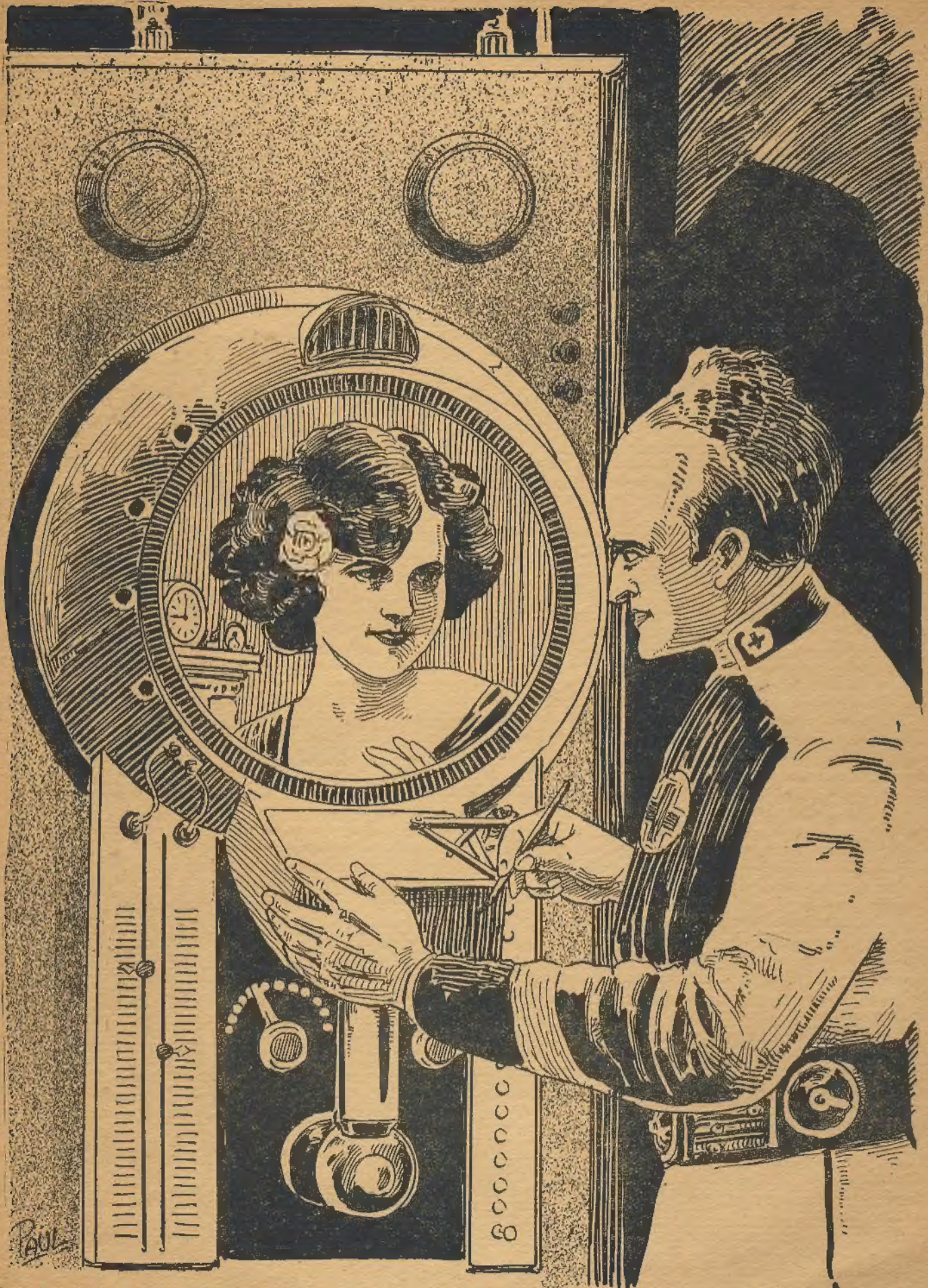
Nevertheless he bowed in ackwnowledgment of the pretty speech.

She was now close to the faceplate and was looking with curious eyes at the details of the laboratory—one of the finest in the world.

"What a strange place! What is it, and where are you?" she asked naïvely.

"New York," he drawled.

"That's a long way from here," she said brightly. "I



Somewhere in the Teleservice company's central office the connection had been broken. After several vain efforts to restore it, Ralph was about to give up in disgust and leave the telephot, when the instrument began to glow again. But instead of the face of his friend, there appeared that of a vivacious beautiful girl.

wonder if you know what city I am talking from?"

"I can make a pretty shrewd guess," he returned. "To begin with, before I rectified your speech you spoke French, hence you are probably French. Secondly, you have a lamp burning in your room although it is only four o'clock in the afternoon here in New York. You also wear evening dress. It must be evening, and inasmuch as the clock on your mantelpiece points to nine I would say you are in France, as New York time is five hours ahead of French time."

"Clever, but not quite right. I am not French nor do I live in France. I am Swiss and I live in western Switzerland. Swiss time, you know, is almost the same as French time."

Both laughed. Suddenly she said:

"Your face looks so familiar to me, it seems I must have seen you before."

"That is possible," he admitted somewhat embarrassed. "You have perhaps seen one of my pictures."

"How stupid of me!" she exclaimed. "Why, of course, I should have recognized you immediately. You are the great American inventor, Ralph 124C 41+."

He again smiled and she continued:

"How interesting your work must be and just think how *perfectly* lovely that I should be so fortunate as to make your acquaintance in this manner. Fancy, the great Ralph 124C 41+ who always denies himself to society."

SHE hesitated, and then, impulsively, "I wonder if it would be too much to ask you for your autograph?"

Much to his astonishment, Ralph found himself pleased with the request. He usually dismissed autograph-hunting women with a curt refusal.

"Certainly," he answered, "but it seems only fair that I should know to whom I am giving it."

"Oh," she said, blushing a little, and then, with dancing eyes, "Why?"

"Because," replied Ralph with an audacity that surprised himself, "I don't want to be put to the necessity of calling up all Switzerland to find you again."

"Well, if you put it that way," she said, the scarlet mounting in her cheeks, "I suppose I must. I am Alice 212B 423, of Ventalp, Switzerland."

Ralph then attached the telautograph to his telephot, while the girl did the same. When both instruments were connected, he signed his name and he saw his signature appear simultaneously on the machine in Switzerland.

"Thank you so much!" she exclaimed, and added, "I am really proud to have your autograph. From what I have heard of you, this is the first you have ever given to a lady. Am I right?" she asked.

"You are perfectly correct, and what is more, it affords me a very great pleasure to present it to you."

"How lovely," she said as she held up the autograph, "I have never seen an original signature with the +, for there are only ten of you who have it on this planet, and now to actually *have* one seems almost unbelievable."

The awe and admiration in her dark eyes began to make him feel a little uncomfortable. She sensed this immediately and once more became apologetic.

"I shouldn't take up your time in this manner," she went on, "but you see, I have not spoken to any living being for five days and I am just dying to talk."

"Go right ahead, I am delighted to listen. What caused your isolation?"

"Well, you see," she answered, "father and I live in our villa half way up Mount Rosa, and for the last five days such a terrible blizzard has been raging that the house is entirely snowed in. The storm was so terrific that no aeroflyer could come near the house; I have never seen such a thing before. Five days ago my father and brother left for Paris, intending to return the same afternoon, but they had a bad accident, in which my brother dislocated his knee-cap; both, therefore, were obliged to stay somewhere near Paris, where they landed. In the meanwhile the blizzard set in. The teleservice line became disconnected somewhere in the valley, and this is the first connection I have had for five days. How they came to connect me with New York, though, is a puzzle!"

"Most extraordinary—but how about the radio?"

"Both the Power mast and the Communico mast were blown down the same day, and I was left without any means of communication whatever. However, I managed to put the light magnesium power mast into a temporary position again, and I had just called up the Teleservice Company, telling them again to direct the power, and getting some other information, when they cut me in on you."

"Yes, I knew something was wrong when I saw the old-fashioned Radialamp in your room, and I could not quite understand it. You had better try the power now; they probably have directed it by this time; anyhow, the Luminor should work."

"You are probably right," and raising her voice, she called out sharply: *"Lux!"*

The delicate detectophone mechanism of the Luminor responded instantly to her command; and the room was flooded at once with the beautiful cold pink-white Luminor-light, emanating from the thin wire running around the four sides of the room below the white ceiling.

The light, however, seemed too strong, and she sharply cried, *"Lux-dah!"* The mechanism again responded; the cold light-radiation of the Luminor wire decreased in intensity at once and the room appeared in an exquisite pink light.

"That's better now," she laughed. "The heater just begins to get warm, too. I am frozen stiff; just think, no heat for five days! I really sometimes envy our ancestors, who, I believe, heated their houses with stoves, burning strange black rocks or tree-chunks in them!"

"That's too bad! It must be a dreadful predicament to be cut off from the entire world, in these days of weather control. It must be a novel experience. I cannot understand, however, what should have brought on a blizzard in midsummer."

"UNFORTUNATELY, our governor had some trouble with the four weather-engineers of our district, some months ago, and they struck for better living. They claimed the authorities did not furnish them with sufficient luxuries, and when their demands were refused, they simultaneously turned on the high-depression at the four Meteoro-Towers and then fled, leaving their towers with the high-tension currents escaping at a tremendous rate.

"This was done in the evening, and by midnight our entire district, bounded by the four Meteoro-Towers, was covered with two inches of snow. They had especially erected additional discharge arms, pointing downward from the towers, for the purpose of snowing in the Meteoros completely.

"Their plans were well laid, for it became impossible to approach the towers for four days; and they finally had to be dismantled by directed energy from forty other Meteoro-Towers, which directed a tremendous amount of power against the four local towers, till the latter were fused and melted.

"The other Meteoros, I believe, will start in immediately to direct a low-pressure over our district; but, as they are not very near us, it will probably take them twenty-four hours to generate enough heat to melt the

snow and ice. They will probably encounter considerable difficulty, because our snowed-under district naturally will give rise to some meteorological disturbances in their own districts, and therefore they will be obliged, I presume, to take care of the weather conditions in their districts as well as in our own."

"What a remarkable case!" Ralph ejaculated.

She opened her mouth as if to say something. But at that moment an electric gong began to ring so loud that it rang through in Ralph's laboratory, four thousand miles away.

Immediately her countenance changed, and the smile in her eyes gave way to a look of terror.

"What is that?" Ralph asked sharply.

"A landslide! It's just started—what shall I do, oh, what shall I do! It'll reach here in fifteen minutes and I'm absolutely helpless. Tell me—what shall I do?"

The mind of the scientist reacted instantly.

"Speak quick!" he barked. "Is your power mast still up?"

"Yes, but what good—?"

"Never mind. Your wave length?"

".629."

"Oscillatory?"

"491,211."

"Can you direct it yourself?"

"Yes."

"Could you attach a six-foot piece of your blown-down Communico mast to the base of the Power aerial?"

"Certainly—it's of alomagnesium and it is very light."

"Good! Now act quick! Run to the roof and attach the Communico mastpiece to the very base of the power mast, and point the former towards the landslide. Then move the directoscope exactly to west-by-south, and point the antenna of the power mast east-by-north. Now run—I'll do the rest!"

He saw her drop the receiver and rush away from the telephot. Immediately he leaped up the glass stairs to the top of his building, and swung his big aerial around so that it pointed west-by-south.

He then adjusted his directoscope till a little bell began to ring. He knew then that the instrument was in perfect tune with the far-off instrument in Switzerland; he also noted that its pointer had swung to exactly east-by-north.

"So far, so good," he whistled with satisfaction. "Now for the power!"

He ran down to the laboratory and threw in a switch. Then he threw in another one with his foot, clasping his ears tightly with his rubber-gloved hands. A terrible, yelling sound was heard, and the building shook. It was the warning siren on top of the house, which could be heard within a radius of sixty miles, sounding its warning to all to keep away from tall steel or metal structures, or, if they could not do this, to insulate themselves.

He sounded the siren twice for ten seconds, which meant that he would direct his ultra-power for at least twenty minutes, and everybody must be on guard for this length of time.

NO sooner had the siren blast stopped, than he had seen Alice at the telephot, signalling him that everything was in readiness.

He yelled to her to insulate herself, and he saw her jump into a tall glass chair where she sat perfectly still, deathly white. He could see that she clasped her hands to her ears; and he knew that she must be trying to shut out the thunder of the descending landslide.

He ran up his high glass ladder; and having reached the top, he began to turn the large glass wheel, the shaft of which was connected with the ultra-generator.

As he began turning the wheel, for the first time he looked at the clock. He observed that it was just nine minutes after he first had heard the gong and he smiled, coldly. He knew he was in time.

A terrifying roar set in as soon as he had commenced to turn the wheel. It was as if a million devils had been let loose. Sparks were flying everywhere. Small metal parts not encased in lead boxes fused. Long streamers of blue flames emanated from sharp objects, while ball-shaped objects glowed with a white aureole.

Large iron pieces became strongly magnetic, and small iron objects continually flew from one large iron piece to another. Ralph's watch chain became so hot that he had to discard it, together with his watch.

He kept on turning the wheel, and the roar changed to a scream so intense that he had to pull out his rubber ear vacuum-caps in order to drown the terrible sound. As he turned the wheel farther around, the tone of the ultra-generator reached the note where it coincided with the fundamental note of the building, which was built of steelonium (the new substitute for steel).

Suddenly the whole building "sang," with a shriek so loud and piercing that it could be heard twenty miles away.

Another building, whose fundamental note was the same, began to "sing" in its turn, just as one tuning fork produces sympathetic sounds in a similar distant one.

A few more turns of the wheel and the "singing" stopped. As he continued turning the wheel of the generator, the latter gave out sounds sharper and sharper, higher and higher, shriller and shriller, till the shrieking became unendurable.

And then, all of a sudden, the sound stopped.

The frequency had passed over twenty thousand, at which point the human ear ceases to hear sounds.

Ralph turned the wheel a few more notches and then stopped. Except for the flying iron pieces, there was no sound. Even the myriads of sparks leaping around were strangely silent, except for the hissing noise of flames streaming from sharp metal points.

Ralph looked at the clock. It was exactly ten minutes after the first sounding of the gong. He then turned the wheel one notch further and instantly the room was plunged into pitch-black darkness.

* * * * * * * * *

TO anyone unacquainted with the tremendous force under the control of Ralph 124C 41+, but having the temerity to insulate himself and stand on a nearby roof, there would have been visible an unusual sight. He would also have undergone some remarkable experiences.

The uninitiated stranger standing—well-insulated—on a roof not very far off from Ralph's laboratory, would have witnessed the following remarkable phenomena:

As soon as Ralph threw the power of the Ultra-Generator on his aerial, the latter began to shoot out hissing flames in the direction of west-by-south.

As Ralph kept turning on more power, the flames became longer and the sound louder. The heavy iridium wires of the large aerial became red-hot, then yellow, then dazzling white, and the entire mast became white-hot. Just as the observer could hardly endure the shrill hissing sound of the outflowing flames any more, the sound stopped altogether, abruptly, and simultaneously the whole landscape was plunged into such a pitch-black darkness as he had never experienced before. He

could not even see his hand before his eyes. The aerial could not be seen either, although he could feel the tremendous energy still flowing away.

What had happened? The aerial on top of Ralph's house had obtained such a tremendously high frequency, and had become so strongly "etherized," that it acted toward the ether much the same as a vacuum pump acts on the air.

The aerial for a radius of some forty miles attracted the ether so fast that a new supply could not spread over this area with sufficient rapidity.

Inasmuch as light waves cannot pass through space without the medium of ether, *it necessarily follows that the entire area upon which the aerial acted was dark.*

The observer who had never before been in an etherless hole (the so-called negative whirlpool), experienced some remarkable sensations during the twenty minutes that followed.

It is a well known fact that heat waves cannot pass through space without their medium, ether, the same as an electric bell, working in a vacuum, cannot be heard outside of the vacuum, because sound waves cannot pass through free space without their medium, the air.

No sooner had the darkness set in, than a peculiar feeling of numbness and passiveness would have come over him.

As long as he was in the etherless space, *he absolutely stopped growing older. He furthermore had lost all sense of heat or cold.* His pipe, hot previously, was neither hot nor cold to his touch. His own body could not grow cold as its heat could not be given off to the atmosphere, not even if he had sat on a cake of ice, because there was no ether to permit the heat to pass from one molecule to another.

He would have remembered how, one day, he had been in a tornado center, and how, when the storm center had created a partial vacuum around him, he all of a sudden had felt the very air drawn from his lungs. He would have remembered people talking about an airless hole, in which there was no medium but ether (inasmuch as he could see the light). Now things were reversed. He could hear and breathe, because the ether has no effect on these functions; but he had been robbed of his visual senses, and heat or cold could not affect him, as there was no means by which the heat or cold could traverse the ether-hole.

* * * * * * * * *

ALICE'S father, who had heard of the strike of the Meteoro-Tower operators and guessed at his daughter's predicament, rushed back from Paris in his aeroflyer. He had speeded up his machine to the utmost, scenting impending disaster as if by instinct. When finally his villa came into sight, his blood froze in his veins and his heart stopped beating at the scene below.

He could see that an immense landslide was creeping down the mountain-side, and the house which sheltered his daughter, was directly in its path.

As he approached, he heard the roar and thunder of its advance as it swept over everything in its path. He knew he was powerless; he knew he could not reach the house in time, and it only meant his own certain destruction if he could; for that reason there was nothing to do but be a spectator of the tragedy which would be enacted before his eyes in a few short minutes.

At this juncture a miracle—at least so it seemed to the distracted father—occurred.

His eye chanced to fall on the power mast on the top of his house. He could see the iridium aerial wires which were pointing east-by-north suddenly become red-hot; then yellow, then white-hot. At the same time he felt that some enormous etheric disturbance had been set up, for sparks were flying from all metallic parts of his machine. When he looked again at the aerial on his house, he saw that a piece of the communico mast, which apparently had fallen at the base of the power mast, and which was pointing directly at the avalanche, was streaming gigantic flames which grew longer and longer, and gave forth shriller and shriller sounds. The flames which streamed from the end of the communico-mast-piece looked like a tremendously long jet of water leaving its nozzle under pressure.

For about five hundred yards from the tip of the communico mast it was really only a single flame about fifteen feet in diameter. Beyond that it spread out fan-wise. He could also see that the entire power mast, including the communico mast, was glowing in a white heat, showing that immense forces were directed upon it. By this time the landslide had almost come in contact with the furthest end of the flames.

Here the unbelievable happened. No sooner did the icy front touch the flames, than it began to turn to water. The heat of those flames seemed so intense and powerful that had the landslide been a block of solid ice it would not have made any marked difference. As it was, the entire front was being reduced to hot water, steam and gravel, even before it reached the main shaft of the flame.

A torrent of hot water rushing down the mountain was all that remained of the menacing attack; and while the water did some damage, it was insignificant.

For several minutes after the melting of the ice, the flames continued to stream from the aerial, and then faded away.

Ralph 124C 41+, in New York, four thousand miles distant, had turned off the power of his ultra-generator.

He climbed down his glass ladder, stepped over to the telephot, and found that Alice had already reached her instrument.

She looked at the man, smiling in the faceplate of the telephot, almost dumb with an emotion that came very near to being reverence.

The voice that reached him was trembling and he could see her struggle for coherent speech.

"It's gone," she gasped; "what *did* you do?"

"Melted it."

"Melted it!" she echoed, "I—"

Before she could continue, the door in her room burst violently open and in rushed a fear-stricken old man. Alice flew to his arms, crying, "Oh father,—"

Ralph 124C 41+ with discretion, disconnected the telephot.

CHAPTER II.

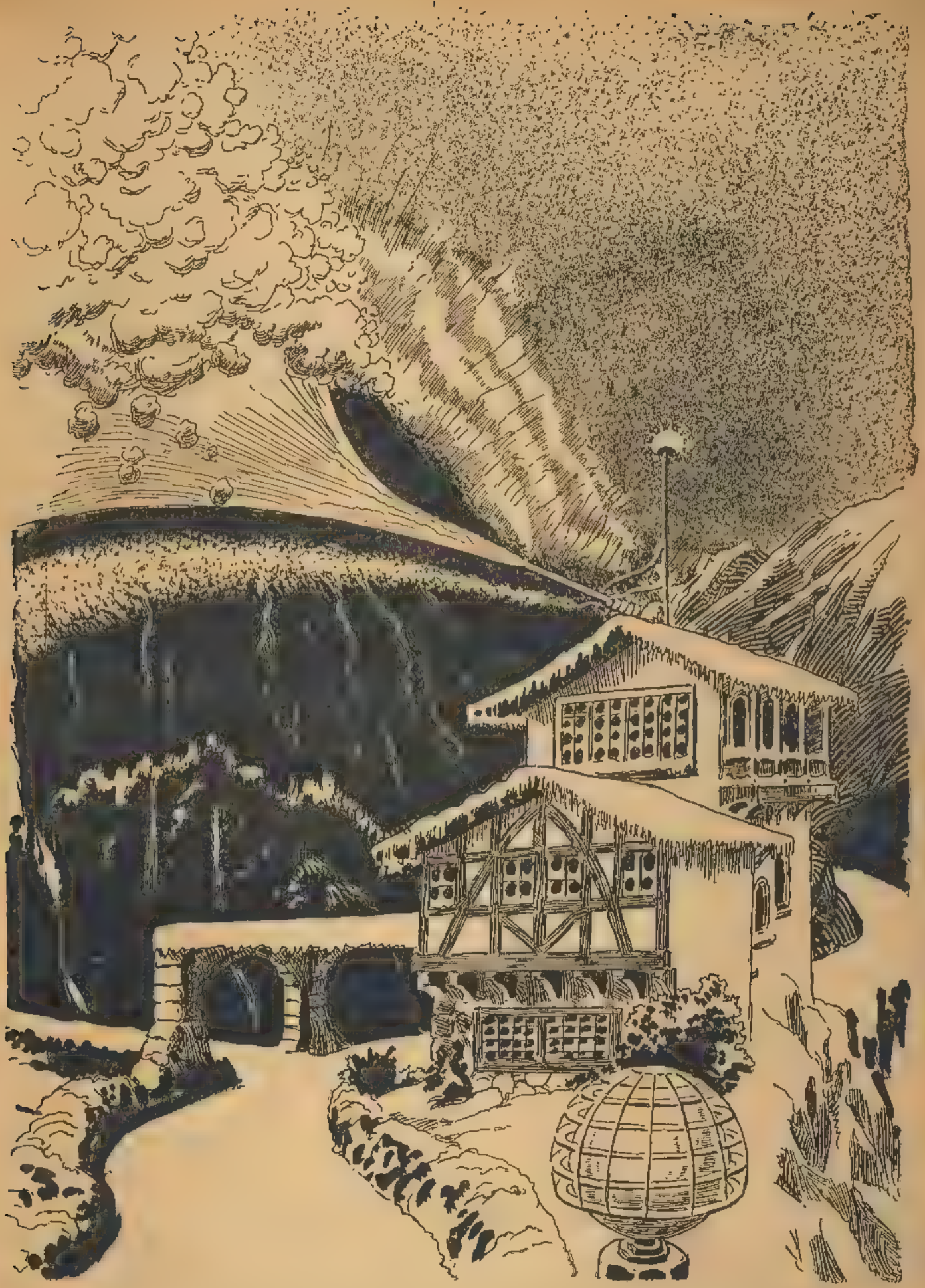
Two Faces

FEELING the need of fresh air and quiet after the strain of the last half hour, Ralph 124C 41+ climbed the few steps leading from the laboratory to the roof and sat down on a bench beneath the revolving aerial.

The hum of the great city came faintly from below. Aeroflyers dotted the sky. From time to time, transoceanic or trans-continental air liners passed with a low vibration, scarcely audible.

At times a great air-craft would come close—within 500 yards perhaps—when the passengers would crane their necks to get a good view of his "house," if such it could be called.

Indeed, his "house," which was a round tower, six hundred and fifty feet high, and thirty in diameter, built entirely of crystal glass-bricks and steelonium, was one of the sights of New York.



The entire avalanche was being reduced to hot water and steam even before it reached the flame.

A grateful city, recognizing his genius and his benefits to humanity, had erected the great tower for him on a plot where Union Square had been centuries ago.

The top of the tower was twice as great in circumference as the main building, and in this upper part was located the research laboratory, famous throughout the world. An electro-magnetic tube elevator ran down the tower on one side of the building, all the rooms being circular in shape, except for the space taken up by the elevator.

Ralph, sitting on the roof of his tower, was oblivious to all about him. He was unable to dismiss from his mind the lovely face of the girl whose life he had just helped save. The soft tones of her voice were in his ears. Heretofore, engrossed in his work, his scientific mind had been oblivious to women. They had played no part in his life. Science had been his mistress, and a laboratory, his home.

And now, in one short half hour, the whole world had become a new place for him. Two dark eyes, a bewitching pair of lips, a voice that had stirred the very core of his being—

Ralph shook himself. It was not for him to think of these things, he told himself. He was but a tool, a tool to advance science, to benefit humanity. He belonged, not to himself, but to the Government—the Government, who fed and clothed him, and whose doctors guarded his health with every precaution. He had to pay the penalty of his +. To be sure, he had everything. He had but to ask and his wish was law—if it did not interfere with his work.

There were times when he grew restive under the restraint. He longed to smoke the tobacco forbidden him by watchful doctors, and to indulge in those little vices which vary the monotony of existence for the ordinary individual. There were times when he most ardently wished that he *were* an ordinary individual.

He was not allowed to make dangerous tests personally, thereby endangering a life invaluable to the Government. That institution would supply him with some criminal under sentence of death, who would be compelled to undergo the test for him. If the criminal was killed during the experiment, nothing was lost; if he did not perish, he would be imprisoned for life.

Being a true scientist, Ralph wanted to make his own dangerous experiments. Not to do this took away the very spice of life for him, and on occasion he rebelled. He would call up the Planet Governor, the ruler of 90 billion human beings, and demand that he be relieved of his work.

"I can't stand it," he would protest. "This constraint which I am forced to endure maddens me. I feel that I am being hampered."

The Governor, a wise man, and a kindly one, would often call upon him in person, and for a long time they would discuss the question, Ralph protesting, the Governor reasoning with him.

"I am nothing but a prisoner," Ralph stormed once.

"You are a great inventor," smiled the Governor, "and a tremendous factor in the world's advancement. You are invaluable to humanity, and—you are irreplaceable. You belong to the world—not to yourself."

Many times in the past few years he recalled, had the two been over the same ground, and many times had the diplomatic Governor convinced the scientist that in sacrifice of self and devotion to the world's future lay his great reward.

THE voice of his manservant interrupted his reverie. "Sir," he said, "your presence in the transmission-room would be appreciated."

"What is it?" asked the scientist, impatient at the interruption.

"Sir, the people have heard all about the Switzerland incident of an hour ago and desire to show their appreciation."

"Well, I suppose I must submit," the inventor rather wearily responded, and both stepped over into the round steel car of the electromagnetic elevator. The butler pressed one of the 28 ivory buttons and the car shot downward, with neither noise nor friction. There were no cables or guides, the car being held and propelled by magnetism only. At the 22nd floor the car stopped, and Ralph stepped into the transmission-room.

No sooner had he entered, than the deafening applause of hundreds of thousands of voices greeted him, and he was forced to put his hands to his ears to muffle the sound.

Yet, the transmission-room was entirely empty.

Every inch of the wall, however, was covered with large-sized Telephots and loud-speaking devices.

Centuries ago, when people tendered some one an ovation, they would all assemble in some great square or large hall. The celebrity would have to appear in person, else there would be no ovation—truly it was a clumsy means. Then, too, in those years, people at a distance could neither see nor hear what was going on throughout the world.

Ralph's ovation was the result of the enterprise of a news "paper" which had issued extras about his exploit, and urged its readers to be connected with him at 5 p. m.

Naturally, everyone who could spare the time had called the Teleservice Company and asked to be connected with the inventor's trunk-line. And this was the result.

Ralph 124C 41+ stepped into the middle of the room and bowed to the four points of the compass, in order that all might get a good look at him. The noise was deafening, and as it grew in volume rather than diminished, he beseechingly held up his hands. In a few seconds the applause ceased and some one cried—"Speech!"

Ralph spoke briefly, thanking his audience for their interest, and touching but lightly upon his rescue of the young Swiss girl, begged his hearers to remember that in no way had he risked his life, and that he could therefore scarcely be called a hero.

Vociferous cries of "No, no," told him that no one shared his humble opinion of the achievement.

It was at this juncture that Ralph's attention was caught by two persons in the audience. There were so many thousands of faces on each plate, that nearly every countenance was blurred, due to their constant movement. (He himself, however, was clearly seen by them, as each one had switched on their "reversers," making it possible to see only the object at the end of the line.)

To Ralph, the shifting, clouded appearance of his audience was a commonplace.

This was not the first time that he had been called upon to receive the thanks of the multitude for some unusual service he had rendered them, or some surprising scientific feat he had successfully accomplished. While realizing that he must of necessity yield to public adulation, it more or less bored him.

He was not particularly interested in the crowd, either collectively or individually, and as there were so many faces crowded into each faceplate, he made no attempt to distinguish friends from strangers.

Yet this time there were two faces among the numerous telephot faceplates that Ralph, in making his brief speech, found his eyes returning to again and again. Each occupied the whole of a respective face-

plate and while dissimilar in appearance, nevertheless were markedly alike in expression. It was as if they were studying this great scientist, endeavoring to fix in their minds a permanent picture of him. Ralph sensed no animosity in their steady, almost hypnotic gaze, and yet they were curiously apart from the enthusiastic throng. He felt as though he were, to both of them, under the microscope.

One of the faces was that of a man in his early thirties. It was a handsome face, although, to the close observer, the eyes were set just a trifle too near each other, and the mouth betrayed cunning and a touch of viciousness.

The other was not a Terrestrial, but a visiting Martian. It was impossible to mistake the distinctly Martian cast of countenance. The great black horse eyes in the long, melancholy face, the elongated, slightly pointed ears were proof enough. Martians in New York were not sufficiently rare to excite any particular comment. Many made that city their permanent home, although the law on the planet Earth, as well as on Mars, which forbade the intermarriage of Martians and Terrestrials, kept them from flocking earthwards in any great numbers.

In the applause that followed the conclusion of Ralph's words, the incident of the two pairs of scrutinizing eyes vanished from his thoughts. But his subconscious self, that marvelous mechanism which forgets nothing, had photographed them indelibly. With the plaudits of the crowd still ringing, he bowed and left the room.

HE went, *via* the elevator, directly to his library, and asked for the afternoon news.

His man handed him a tray on which lay a piece of material *as large as a postage stamp*, as transparent and flexible as celluloid.

"What edition is this?" he asked.

"The 5 o'clock *New York News*, sir."

Ralph took the "News" and placed it in a metal holder, which was part of the hinged door of a small box. He closed the door and turned on a switch on the side of the box. Immediately there appeared on the opposite white wall of the room, a twelve-column page of the *New York News* and the scientist, leaning back in his chair, proceeded to read.

The *New York News* was simply a microscopic reduction of a page, which, when enlarged by a powerful projection lens, became plainly visible.

Moreover, each paper had eight "pages," in separate sheets, as was the fashion centuries ago, but these eight pages were on one piece of paper, literally on top of each other. The printing process was electrolytic, no ink whatsoever being used in the manufacture of the "newspaper." This process was invented in 1910 by an Englishman, and improved by the American 64L 52 in 2031, who made it possible to "print" *in one operation*, eight different subjects, *one on top of another*.

These eight impressions could be made visible only by subjecting the "paper" to different colors, the color rays bringing out the different prints. The seven colors of the rainbow were used, while white light was employed to show reproduced photographs, etc., in their natural colors. With this method it was possible to "print" a "newspaper," fully ten times as large in volume as any newspaper of the 21st century, on a piece of film, the size of a postage stamp.

Each paper published an edition every 30 minutes, and if one did not possess a projector, one could read the "paper" by inserting the *News* in a holder beneath a powerful lens which one carried in one's pocket, folded when not in use. To read the eight different pages, a revolving color screen was placed directly underneath the lens, to bring out the different colors necessary to read the "paper."

Ralph 124C 41+, glancing over the headlines of his *News*, saw that considerable space was given to his latest exploit, the paper showing actual photographs of the Swiss Alpine scene, which a correspondent had taken as the landslide crept down the mountain. The photographs had been sent by teleradiograph immediately after the occurrence in Switzerland, and the *News* had printed them in all the *natural* colors twenty minutes after Ralph had turned off the ultra-power in New York.

These photographs seemed to be the only thing that interested Ralph, as they showed the house and the surrounding Alps. These, with the threatening catastrophe in progression photographed and reproduced in the natural colors, were very impressive.

Presently he revolved the color screen of his projector to green—the technical page of the *News*—to him the most interesting reading in the paper.

He soon had read all that interested him, and as there was still an hour before dinner time, he began to "write" his lecture: "On the prolongation of animal life by T-Rays."

He attached a double leather head-band to his head. At each end of the band was attached a round metal disk that pressed closely on the temples. From each metal disk an insulated wire led to a small square box, the *mentigraph*, or mindwriter.

He then pressed a button and a low humming was heard; simultaneously, two small bulbs began to glow with a soft green fluorescent light. Grasping a button connected with a flexible cord to the mentigraph, he leaned back in his chair.

AFTER a few minutes' reflection he pressed the button, and at once a wave line, traced in ink, appeared on a narrow white fabric band, the latter resembling a telegraph recorder tape.

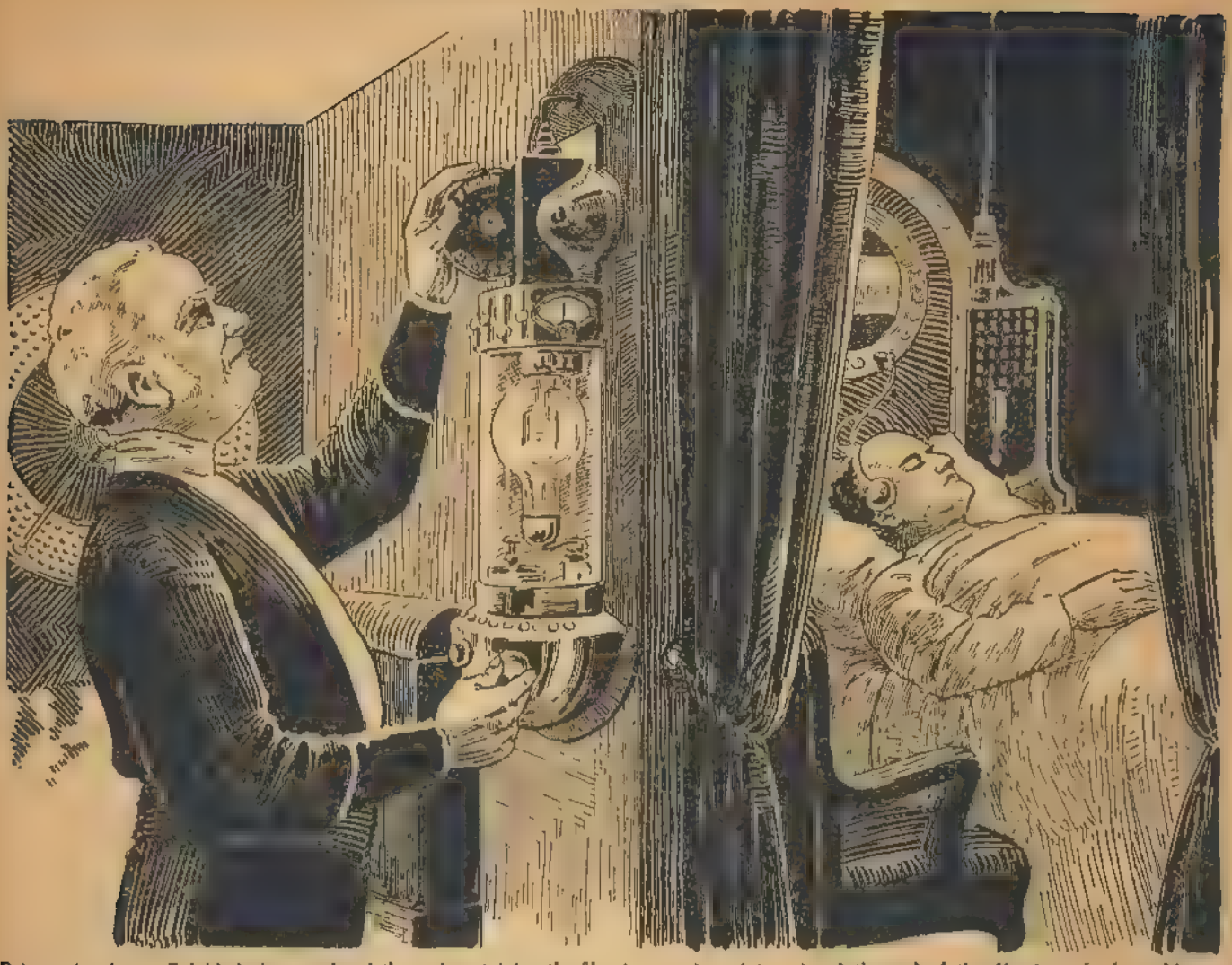
The band which moved rapidly, was unrolled from one reel and rolled up on another. Whenever the inventor wished to "write" down his thoughts, he would press the button, which started the mechanism as well as the recording tracer.

(Below is shown the record of a Mentigraph, the piece of tape being actual size.

Where the waveline breaks, a new word or sentence commences; the three words shown are the result of the thought which expresses itself in the words, *"In olden times."*. . .)

The mentigraph was one of Ralph 124C 41+'s earliest inventions, and entirely superseded the pen and pencil. It was only necessary to press the button when an idea was to be recorded and to release the button when one reflected and did not wish the thought-words recorded.

Instead of writing a letter, one sent the recorded *mentitape*, and inasmuch as the mentalphabet was universal and could be read by anyone—children were taught it at an early age—it was considered that this invention of Ralph's was one of his greatest gifts to humanity: Twenty times as much work could be done by means of the mentigraph as could be done by the old-fashioned writing, which required considerable physical effort. Typewriters soon disappeared after its invention. Nor was there any use for stenographers, as the thoughts were written down direct on the tape,



Peter, returning to Ralph's bedroom, placed the reel containing the film in a rack and introduced the end of the film into the hypnobioscope

which was sent out just as a letter was sent centuries ago.

AS was his custom in the evening, he worked for some hours in the laboratory, and retired at midnight. Before he fell asleep, he attached to his head a double leather head-band with metal temple plates, similar to the one used in connection with the mentigraph.

He then called for his man, Peter, and told him to "put on" Homer's *Odyssey* for the night.

Peter went down to the library on the 15th floor, and took down from a shelf a narrow box, labelled *Odyssey, Homer*. From this he extracted a large but thin reel on which was wound a long narrow film. This film was entirely black but for a white transparent wave-line running through the center of it.

Peter, returning to Ralph's bedroom, placed the reel containing the film in a rack and introduced the end of the film into the *hypnobioscope*. This wonderful instrument, invented by Ralph, transmitted the impulses of the wave-line direct to the brain of the sleeping inventor, who thus was made to "dream" the "Odyssey."

It had been known for centuries that the brain could be affected during sleep by certain processes. Thus one could be forced to dream that a heavy object was lying on one's chest, if such an object was placed on the sleeper's chest. Or one could be forced to dream that one's hand was being burnt or frozen, simply by heating or cooling the sleeper's hand.

It remained to Ralph, however, to perfect the hypnobioscope, which transmitted words direct to the sleeping brain, in such a manner that everything could be remembered in detail the next morning.

This was made possible by having the impulses *act directly and steadily on the brain*. In other words, it was the mentigraph reversed, with certain additions.

Thus, while in a passive state, the mind absorbed the impressions quite readily and mechanically and a story "read" by means of the hypnobioscope left a much stronger impression than if the same story had been read while conscious.

For thousands of years humanity had wasted half of its life during sleep—the negative life. Since Ralph's invention, all this was changed. Not one night was lost by anyone, where conditions permitted. All books were read while one slept. *Most of the studying was done while one slept*. Some people mastered ten languages, during their sleep-life. Children who could not be successfully taught in school during their hours of consciousness, became good scholars, if the lessons were repeated during their sleep-life.

The morning "newspapers" were transmitted to the sleeping subscribers by wire at about 5 A. M. The great newspaper offices had hundreds of hypnobioscopes in operation, the subscriber's wire leading to them. The newspaper office, notified by each subscriber what kind of news is desirable, furnished only such news. Consequently, by the time the subscriber was ready for breakfast, he already knew the latest news, and could discuss it with his family, the members of which also had been connected with the newspaper hypnobioscope.

CHAPTER III.
Dead or Alive?

AN apologetic cough came through the entrance to the laboratory. It was nearing one o'clock of the following day.

Several minutes later it was repeated, to the intense annoyance of the scientist, who had left orders that he was not to be interrupted in his work under any circumstances.

At the third "ahem!" he raised his head and stared fixedly at the empty space between the door jambs. The most determined optimist could not have spelled welcome in that look.

Peter, advancing his neck around the corner until one eye met that of his master, withdrew it hastily.

"Well, what is it?" came from the laboratory, in an irritated, harsh voice.

Peter, in the act of retreating on tiptoe, turned, and once more cocked a solitary eye around the door-jamb. This one feature had the beseeching look of a dog trying to convey by his expression that not for worlds would he have got in the way of your boot.

"Beg pardon, sir, but there's a young—"

"Won't see him!"

"But, sir, it's a young lady—"

"I'm busy, get out!"

Peter gulped desperately. "The young lady from—"

At this moment Ralph pressed a button nearby, an electromagnet acted, and a heavy plate glass door slid down from above, almost brushing Peter's melancholy countenance, terminating the conversation summarily.

Having secured himself against further interruption, Ralph returned to the large glass box over which he had been working, and in which one could see, through greenish vapors, a dog, across whose heart was strapped a flat glass box filled with a metal-like substance.

The substance in the box was radium-K. Radium, which had been known for centuries, had the curious property of giving out heat for thousands of years without apparently obtaining energy from any outside source.

In 2009, Anatole M610 B9, the great French physicist, found that radium obtained all its energy from the ether of space and proved that radium was one of the few substances having very strong affinity for the ether. Radium, he found, attracted the ether violently and the latter surging back and forward through the radium became charged electrically, presenting all the other well-known phenomena.

Anatole M610 B9 compared the action of radium on the ether with that of a magnet acting upon a piece of iron. He proved this theory by examining a piece of pure metallic radium in an etherless space, whereupon it lost all its characteristics and acted like a piece of ordinary metal.

Radium-K, as used by Ralph, was not pure radium, but an alloy composed of radium and argonium. This alloy exhibited all the usual phenomena of pure radium and produced great heat, but did not create burns on animal tissue. It could be handled freely and without danger.

The dog lying in the glass box had been "dead" for three years. Just three years previous, in the presence of twenty noted scientists, Ralph 124C 41+ had exhibited a live dog and had proceeded to drain off *all* its blood till the dog was pronounced quite dead and its heart had stopped beating. Thereupon he had refilled the emply blood vessels of the animal with a weak solution of radium-K bromide, and the large artery through which the solution was pumped into the body had been closed.

The flat box containing radium-K was then strapped over the dog's heart and it was placed in the large glass case. The latter was filled with *permagatol*, a green gas having the property of preserving animal tissue permanently and indefinitely. The purpose of the box containing radium-K was to keep the temperature of the dog's body at a fixed point.

After the case was completely filled with gas, the glass cover was sealed in such a manner that it was impossible to open the case without breaking the seals. The scientists had agreed to return after a lapse of three years to witness the opening of the box.

There were several delicate instruments inside the box and these were connected by means of wires to recording instruments on the side. Ralph inspected these twice each day. Throughout the three years, the "dead" dog had never stirred a muscle. His temperature had not varied 1/100 of a degree and his respiratory functions had shown no signs of life. To all intents and purposes the dog was "dead."

THE time was close at hand for the final stages of what Ralph considered to be his greatest experiment. Three years ago, when he faced his fellow scientists at the end of the first stage of this work, he electrified them by announcing that he expected to prove that this dog, which they had all pronounced "dead," could be restored to life, unharmed, unchanged, with no more effects upon the dog's spirits, habits, and nature, than if the animal had taken but a short nap.

For three years this experiment of Ralph 124C 41+ had been the subject of innumerable scientific papers; it had been discussed intermittently in the newspapers and the date of the final phase of the great experiment was fixed in the mind of every human being on the planet.

If the experiment succeeded, it meant the prolongation of human life over greater periods of the earth's history than had ever been possible before. It meant that premature death, except through accident, would be ended.

Would he succeed? Had he attempted the impossible? Was he challenging Nature to a combat only to be worsted?

These thoughts obtruded themselves into his consciousness as he began the preparations for the great test of the afternoon. He pumped out the permagatol from the box until the green vapor had completely disappeared. With infinite care he then forced a small quantity of oxygen into the box. The instruments recording the action of the respiratory organs indicated that the oxygen reaching the dog's lungs had stimulated respiration.

This being all he could do for the present, he pressed the button that raised the glass barrier, and summoned Peter by means of another button.

That individual, looking a trifle more melancholy than usual, responded at once.

"Well, my boy," said Ralph good-humoredly, "the stage is all set for the experiment that will set the whole world by the ears. But you don't look happy, Peter. What's troubling your dear old soul?"

Peter, whose feelings had evidently been lacerated when the door was lowered in his face, replied with heavy dignity.

"Beg pardon, sir, but the young lady is still waiting."

"What young lady?" asked Ralph.

"The young lady from Switzerland, sir."

"The—which?"

"The young lady from Switzerland, sir, and her father, sir. They've been waiting for half an hour."

If a bomb had exploded that instant, Ralph could not have been more astounded.

"She's here—and you didn't call me? Peter, there are times when I am tempted to throw you out—"

"Pardon sir," replied Peter firmly, "I made bold to assume that you might be interested in the young lady's arrival, and presumed to step into the laboratory to so inform—"

But his master had gone, shedding his laboratory smock as he went. Peter, gathering his dignity about him as a garment, reached the doorway in time to see the elevator slide downwards out of sight.

And in it, Ralph, his heart thumping in a most undignified manner, was acting more like a schoolboy than like a master of science. He twitched at his tie with one hand and smoothed his hair with the other, peering into the elevator's little mirror anxiously. Discovering a smudge on his cheeks, he checked the car between floors, while he wiped away the spot with his handkerchief.

WHEN he reached the reception room, he sprang from the elevator eagerly and hurried in. Seated by one of the windows were Alice 212B 423 and her father. Both turned as he entered. The girl rose to her feet and with a charming gesture held out both hands.

"We just *had* to come," she said prettily, and in perfect English. "You didn't give us an opportunity to thank you yesterday, and anyhow, we felt that telephone thanks were not nearly so nice. That is, father thought we really ought to come in person. Of course, I did, too. I wanted to see you ever so much"—she broke off, realizing the implication of her words, and went on hastily, with reddened cheeks and downcast eyes, "I mean, to—to thank you, you know."

"It was wonderful of you," he declared, still holding her two hands, and utterly unmindful of the fact that she was gently trying to disengage them. Indeed, he was not conscious of anyone or anything but her, until the voice of her father brought him to the realization that there was someone else in the room.

"We need no introduction, I think," said the gentleman, "but I am James 212B 423, and I must ask you to pardon our intrusion upon a busy scientist's time, but I felt that we should come personally to thank you for the great service you have done us both. She is my one daughter, sir, and I love her dearly—dearly—"

"I can quite understand that," said Ralph with an unconscious ardor that caused Alice, who had completely recovered from her momentary confusion, to dimple and blush delightfully.

"I'm afraid, father dear," she said, "that we are keeping a busy man too long. Your man," she added, turning to Ralph, "said you were engaged in a wonderful experiment, and could not be disturbed."

"Busy? Not at all," said Ralph gracelessly. "You should not have been kept waiting one moment, and I am very indignant with Peter for not breaking down the door. He should have known, when he saw you, that you were not to wait."

"Oh, please, don't scold him because of me," said Alice, not at all displeased with the implied compliment, however.

"I didn't know yesterday that you spoke English," he said, "so I used the language-rectifier, but you speak it perfectly. That is a great relief to me, I assure you, for I speak French very indifferently. But tell me," he continued, "how did you get here so soon? The afternoon transatlantic aeroliner is not due yet, and it can hardly be twenty-four hours since you left Switzerland."

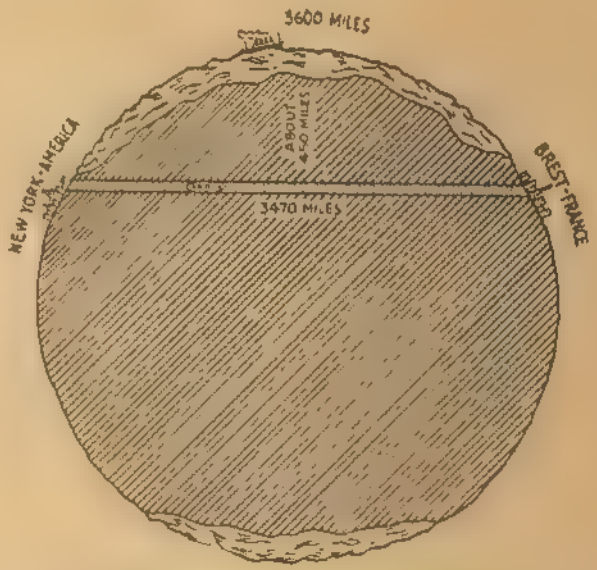
"We had the honor of being the first passengers to arrive by means of the new *Subatlantic Tube*," said James 212B 423. "As you are doubtless aware, the regular passenger service opens next week, but I, being one of the consulting engineers of the new electromagnetic tube, my daughter and I were permitted to make the first trip westward. We made it in perfect safety, although it was a little risky, as some small portions of the tube are not entirely completed."

"And we were so anxious to get here as quickly as possible," broke in Alice with a glance at Ralph.

"But you shouldn't have risked your lives, in an untested tube," he exclaimed. And then, the scientist in him dominating: "Tell me all about this new tube. Busy with my own work, I have not followed its progress closely enough to know its details."

"It has been most interesting work," said James 212B 423, "and we regard it as a real achievement in electrical engineering. The new tube runs in a straight line between New York and Brest, France. If the tube were to run straight along the bottom of the ocean, the distance between the two points would be 3,600 to 3,700 miles, due to the curvature of the earth. For this reason the tube was pushed *straight through the earth*, thereby making the distance only 3470 miles.

"You will understand it better by examining this chart," and unfolding a plan, he proceeded to point out the finer points of the tube construction. "The greatest trouble," he went on, "was experienced by our engineers near the middle of the tube; this point is 450 miles nearer the center of the earth and the heat became very marked. It was necessary to install large liquid-air plants at several points in the tube to reduce the high temperature, and now as you ride through, no heat is noticed.



"WE boarded the spacious steel car, which resembles a thick cigar, at Brest last night at midnight, and arrived at the New York terminal at noon to-day. There was only one stop, a few hundred miles out from Brest, because of several short-circuited electromagnets.

"There are no wheels to the tube car and it is propelled by magnetism only. At each three hundred feet is stationed a powerful tubular electromagnet, about thirty feet long, through which the tube car passes. Each electromagnet exerts a tremendous pull upon the car three hundred feet away, this being the only steel object, and the car rushes toward the electromagnet with a tremendous speed. When the car is only two

feet away from this electromagnet, the current is cut off automatically by the car itself, which later plunges through the open space of the magnet coil, only to be attracted now by the next electromagnet, three hundred feet distant.

"The momentum acquired by the pull of the former electromagnet propels the car with ever-increasing speed, and by the time it has passed through twenty-five electromagnets, it has reached the speed of three hundred miles an hour. It then continues at a steady pace till the end of the journey.

"As the car is held suspended entirely by magnetism, there is practically no friction, as there are no wheels or rails. The only friction comes from the air, and in order that this may not heat the car, it is equipped with a double wall, the space between the inner and outer walls being a vacuum. Consequently, the temperature inside is comfortable at all times. Once inside the car, we retired and slept as soundly as we would in our swinging beds at home. There were no shocks, no noise, no rocking. In fact, the trip was so delightful that I must say the new tube is a decided success!"

"Fine, fine," said Ralph enthusiastically. "This new tube is going to revolutionize intercontinental travel. I suppose it won't be long now before we will regard our tedious twenty-four hour journeys as things of the past. Tell me," turning to Alice who had been an interested listener, "how did the trip impress you?"

"Oh," she exclaimed eagerly, "it was delightful! *So* smooth and fast! I was *so* excited. Really, it was over too soon."

As she spoke, Ralph watched her with keen interest. Here was a girl who attracted him. Beneath the vivacity that so fascinated him, he sensed the strength of her character, and the depth of her mind.

"I am so glad to be in New York," she was saying. "Do you know, this is my first visit here for ages. I can just barely remember the last time. I was such a little girl. Father has been promising me a trip for years," with a laughingly reproachful glance at him, "but it took a landslide to make him keep his promise."

"I'm afraid I've been a neglectful father of late years," said her father, "but my work has kept me tied pretty close to home. I, too, am pleased to be here once more, and my visit promises to be doubly interesting, for I understand that your great dog experiment will be completed today. I am looking forward to receiving the earliest reports of it at the hotel."

"But I can't permit you to spend your days here in a hotel," protested Ralph. "Of course you must both be my guests. Yes, yes," as they seemed about to demur, "I won't take no for an answer. I am counting on showing you New York, and, as for my experiment, it will give me great pleasure to have you both present in my laboratory this afternoon at four."

He pressed a button. "Peter will show you to your rooms, and I will send some one for your luggage."

"You are more than kind," said James. "This is quite unexpected, but none the less delightful. As to attending the meeting in your laboratory this afternoon, it is an honor, sir, that I appreciate deeply."

At this moment Peter stepped from the elevator and Ralph, after giving him instructions to show his guests to their apartment, and directions as to their bags, escorted them to the car and returned to the laboratory.

* * * * * * * * *

PROMPTLY at four, Ralph greeted a notable group of fellow scientists, who had come from all corners of the planet to witness the completion of the famous "Dead-Alive Dog" experiment. A host of reporters lined the walls. Alice and her father were seated near Ralph.

A number of the twenty scientists who had witnessed the beginning of the experiment three years before were dubiously contemplating the glass box, and one or two of the reporters, unawed by the personages in the laboratory, seven of whom were "Plus" men, seemed to find much covert amusement in the whole affair.

Finally, when all of the preparations were completed, and Ralph's two assistants had stationed themselves beside the glass box containing the body, the young scientist addressed the gathering.

"Ladies and gentlemen," he said, "you have come here to witness the final phase of my dog experiment. The preliminary phases you observed three years ago this day in this room. The seals you put in place are intact; you may see them for yourselves, untouched as you left them.

"As I explained three years ago, I formulated the theory that a well preserved animal, though dead to all intents and purposes, could be revived, or new life given to it, provided the body had not undergone decomposition; also provided that none of the organs had suffered in the least.

"I found that the rare gas permagatol would conserve animal tissue and animal organs indefinitely; when it is used in conjunction with a weak solution of radium-K bromide, mixed with antiseptic salts, no part of an animal body will undergo any change for many years.

"I also found that the body would have to be kept at a fixed temperature and this was possible by the use of radium-K alloy. I am now ready to prove my theory."

He signaled to his assistants, and with their aid, the seals were broken and the glass cover of the case removed.

A profound silence prevailed. Every eye was focussed on the dog and many of those present found it difficult to remain seated.

Ralph coolly and deliberately freed the dog of its bandages and attachments and placed the animal on an operating table in plain view of everyone.

From then on he and his aides moved rapidly. First the dog's main artery was opened and the radium-K bromide solution drained off. A young goat was brought in and strapped to the table. In a very few seconds one of its arteries had been opened and connected to the dead dog's main artery. In less than a minute, the dog's body was full of fresh warm blood and immediately efforts were made to bring the dog back to life.

Oxygen was freely administered and the heart was artificially pulsated by means of an electrical vibratory apparatus.

At the same time, one of the assistants had trained a vacuum tube on the dog's head and its cathode shot the powerful F-9-rays into the animal's brain. No sooner had these rays, which are among the most powerful brain stimulants, been trained on the dog, than he began to show slight signs of life. One of the hind legs was drawn up with a jerk as if in a fit. Then came a faint heave of the chest, followed by a weak attempt to breathe.

A few minutes later the body seemed to contract and a shiver seemed to run through it from head to tail. A deep respiration followed, and the animal opened its eyes as if awaking from a long sleep.

In a few minutes more the dog was lying on its paws and licking up milk, when Ralph turned to the group and said:

"Gentlemen, the experiment is concluded and I be-

lieve the condition of the animal at this moment establishes sufficient proof of my theory."

As the reporters eagerly dashed from the laboratory to get to the nearest telephot in order to communicate the news to the waiting world, the scientists gathered around Ralph and one of them, a white haired old man considered to be the dean of the "Plus" men, voiced the sentiment of the entire group.

"Ralph, this is one of the greatest gifts that science has brought to humanity. For, what you have done with a dog, you can do with a human being. I only regret for myself that you had not lived and conducted this experiment when I was a young man, that I might have, from time to time, lived in suspended animation from century to century, and from generation to generation as it will be possible for human beings to do henceforward."

The vista opened up by the results of this experiment, had dazed the scientists and it was with the most perfunctory good-byes that they left the scene of the experiment, enveloped with their thoughts of the future.

Tired and exhausted by the nervous strain of the afternoon, Ralph, a few minutes later, lay down on his bed for a few hours' rest. But as he closed his eyes, there came to him a vivid picture of a pair of warm dark eyes, radiating admiration, trust and something more that aroused an emotion he had never before experienced.

CHAPTER IV.

Fernand

ON THE following morning, Ralph, breakfasting alone, sent Peter to the apartments of his guests to ascertain at what hour they would be ready to do a little sight-seeing with him as guide.

He himself, in the habit of rising at an early hour, had not expected to see either Alice or her father much before noon, and it was a decided surprise to him, to see the latter enter the room a moment after Peter had gone on his errand.

"I see that you, too, like to get up with the birds," said the scientist after they had exchanged morning greetings.

"And Alice also, when she is at home; but the journey, and our exciting day following it, have tired her. I shall just have a bite to eat with you, if you will permit me, and then I must be off to keep an appointment with one of the chief engineers of the Tube."

"Then you will be unable to accompany us on our tour of the city?"

"Yes, but don't let that interfere with your plans. I know that Alice will be safe with you," smiled her father, "and I daresay you young people can get along very well without me."

"I'm sorry," replied Ralph, but in his heart he could not but rejoice that he was to spend the day alone with the woman who, in a few short hours, had so captivated him. Perhaps something of this showed in his face, for James 212B 423 smiled to himself.

Peter returned and presently Ralph and James were seated together at the table. They conversed in a more or less desultory manner until just before the end of the meal, when Alice's father, laying down his napkin, said:

"Before I leave you I have a request to make—a strange one, you may think." He hesitated. "A short time ago I said that I felt that Alice would be safe in your care. I had a special reason for making the remark. The fact is, I am a little worried about her. A young man, by name Fernand 60O 10, has been making rather a nuisance of himself lately. He has asked her to marry him, a number of times, and she has refused, and he has begun to force his attentions on her in a manner which savors of persecution.

"In fact, he went so far, four days ago, as to threaten her. Exactly what passed between them I don't know, but I do know that, although she treated the matter lightly at the time, she is frightened. I have an impression that he may try to kidnap her if she does not accept him, and though, in these enlightened days such a thing seems ridiculous—well, the affair makes me a little nervous. When we left Switzerland, I understood that he was there, but he may have followed Alice here. If he has and renews his unpleasant surveillance, I shall know that my fears have some grounds."

"What does this Fernand look like?" asked Ralph.

"Oh, a nice looking fellow—at least the women think so. Personally, I don't care for him. He is tall and dark, and has the sort of temperament that seems to delight in opposition. His eyes have a sullen expression, and his mouth is somewhat weak. She has, by the way, another admirer, a thoroughly harmless chap, who is here on a visit at present. He is the Martian Llysanorh'CK 1618, and he is really hopelessly infatuated, but being, as I say, a very decent chap who respects the law against marriage between the Martians and Terrestrials, he has never annoyed her in any way. On the other hand, they are very good friends, and I doubt very much whether she even suspects that he has any other feeling for her than that of a devoted friend."

As he was speaking, a picture leapt to Ralph's mind. Once more he saw two faces, each in the center of a telephot, who, among the crowds of applauding admirers, regarded him with such intentness. If these were the two men who cared for Alice, each in his own way, it was not surprising that they had displayed more than a passing interest in the man who had rescued her from what seemed to be certain death, and was a possible rival.

He recounted the incident to James, who agreed with him that in all likelihood his suspicions were correct, and the two men parted for the day, the older bearing with him the comforting reassurance that Ralph would take care of his daughter.

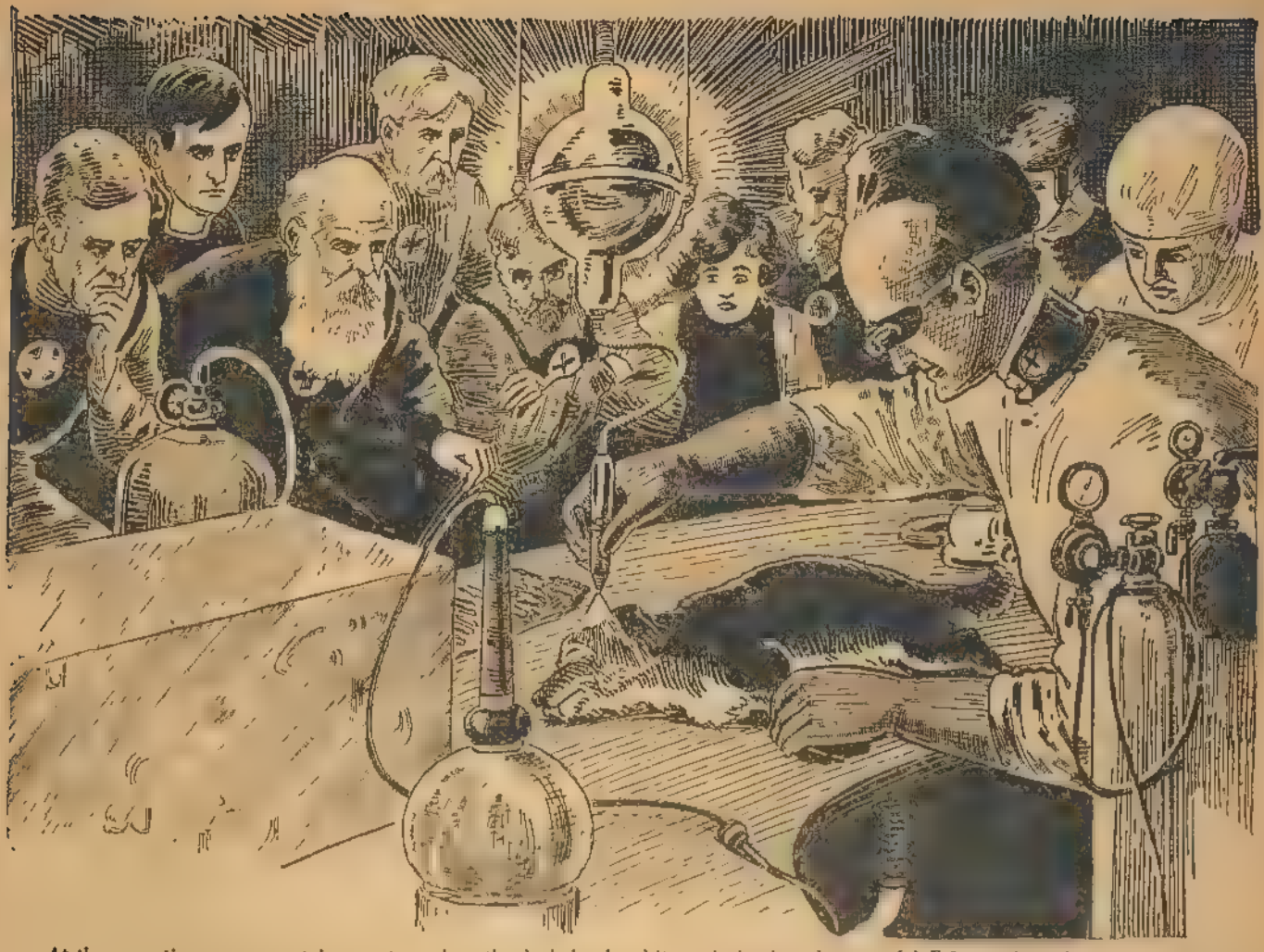
IT was nearing eleven when Alice appeared, bright-eyed after her long rest. She laughingly apologized for being so late, and they set out at once.

"You know," he said before they started, "we New Yorkers are strange birds. We only like our city when we are far away from it, or when we can take some stranger about to show him or her the marvels of the town. As a matter of fact, the real, dyed-in-the-wool New Yorker hates the town and only stays in it because it has cast a spell over him which he cannot escape."

By this time they had arrived at the street level of the building and Ralph bade Alice sit down on a chair in the vestibule. He pressed a nearby button twice and a servant brought two pairs of what appeared to be roller-skates.

In reality they were *tele-motor-coasters*. They were made of alomagnesium and each weighed only about one and one-half pounds. Each had three small, rubber-covered wheels, one in front and two in the rear. Between the wheels was a small electric motor—about the size of a lemon; this motor could only be operated by high frequency currents and, despite its small size, could deliver about one-quarter horsepower.

Ralph explained the coasters and their use to his companion; and after they had put them on by means of an ingenious clutch, whereby the coaster could be snapped upon the shoe in less than five seconds, they both went out into the street. From each coaster a



At the same time a vacuum tube was trained on the dog's head and its cathode shot the powerful F-9-rays into the animal's brain.

thin insulated wire led up the wearer's back to the hat or cap. Here it was attached to the *collector*, which was a stiff pin about eight inches long, projecting half-way out from the hat or cap. This pin sucked up, as it were, the high frequency electricity and carried it to the small motors, which latter propelled the coaster. To control the speed of the motor, one simply lifted up the front part of the coaster; this not only cut off the current, but automatically braked the two rear wheels.

When the two rolled out in the street, Alice at once remarked upon the splendid condition of the roads.

"You see," the scientist explained, "for centuries the city had to content itself with temporary pavements, until about fifty years ago it woke up and covered every street with steelonium.

"You will notice that there are no cracks or fissures. Steelonium won't rust and is ten times as strong as steel. We now make our streets by putting down large slabs of the metal, six inches thick. After they are in place, we weld them together electrically and the result is a perfect street composed of a uniform sheet of metal without cracks or breaks; no dirt or germs can collect. The sidewalks are made in the same manner.

"As a matter of fact, the tele-motor-coasters would not be possible were it not for the metallic streets. The flat spring which trails on the street between the two rear wheels must make continuous contact with the metallic 'ground,' else the current cannot flow."

"But where does the current come from?" asked the girl.

"You have perhaps noticed the white slender posts at the edge of the sidewalk, and on their tops umbrella-like insulators which carry a thick spiked wire. This wire, you will notice, is about fifteen feet above the curb and carries the high frequency current, which not only supplies our coasters with power, by way of our needle collectors, but also propels all the vehicles which you see gliding so noiselessly."

They were well under way and rolled along at a speed of about twenty miles an hour. They saw thousands of citizens, all coasting at high speed. There was no noise other than the peculiar hum produced by the many motors, a sound which was in nowise annoying.

Each sidewalk was divided into two parts. On the outside, only people going in one direction coasted; on the inside, only people going in the opposite direction. Collisions, therefore, were impossible. If a person rolling on the outside wished to enter a store, it was necessary to go to the end of the block, and then turn to the left, which brought him on the inside of the sidewalk, on which he could roll up to his destination. Of course, this was only necessary when the sidewalk was crowded; nothing prevented one's crossing a sidewalk if few people were on the block.

The trolley car and the gasoline-driven automobile had long since become obsolete. Only electromobiles, carrying either passengers or freight, were to be seen. Each vehicle was equipped with a short collector mast by means of which the electrical energy was conveyed to the motors. The wheels of all vehicles were rubber-covered. This accomplished two purposes; it insulated the vehicle from the metallic street and minimized the noise to the greatest extent.

ALTHOUGH Alice had had a good scientific training, some of the wonders of New York amazed her

and just as strangers had done for centuries, she asked questions continuously, and her companion eagerly explained everything with a pleasure peculiar to the New Yorker who loves his town.

"What are those strange spiral wire affairs hanging high over all street crossings?" was one of her first questions.

"They illuminate our streets at night," was the answer. "They are iridium wire spirals, about ten meters in diameter, hanging forty meters up in the air, at the intersection of all our streets. This evening you will see how the entire spiral will glow in a pure white light, which is absolutely cold. The wire throws out the light, and after sundown, you will find that the streets will be almost as light as they are now. Each spiral furnishes over one-half million candlepower, consequently one is needed only where streets intersect, except on very long blocks, when a smaller spiral is hung in the middle."

Presently, while crossing a large square, they passed Meteoro-Tower No. 26, of the seventh district, and Ralph at once launched off into praise of it.

"While you of other countries have a good weather service, we in New York boast of having the finest climate of any town on the face of the globe. As you may imagine, our weather-engineers always have difficult work, owing to the peculiar shape of the city, geographically as well as physically. The tall spires and buildings make the work exceptionally hard, as the air currents are extremely erratic over the city and very hard to control. We now have sixty-eight Meteoro-Towers, all of various power, in Consolidated New York. These are scattered over a radius of ninety miles from the *City Governor's Building*, and control the weather as well as the temperature of New York's two hundred million inhabitants.

"You may look at a thermometer any time during the year and you will find it invariably pointing at fifty units.* There is never an excess of humidity in our air and life is made enjoyable for the hard-working city dwellers, thanks to our well-trained weather engineer corps.

"During the daytime, rain or snow is unheard of. There is continuous sunshine during the three hundred and sixty-five days of the year. Between two and three each morning, it rains for exactly one hour. This is done to freshen the air and to carry the dust away. It is the only rain New York ever gets and it seems to be sufficient for all purposes."

When it neared noon Ralph escorted his companion to a luxurious eating place, which across its entrance bore the name *Scienticafé*. "This is one of our best restaurants, and I think you will prefer it to the old-fashioned masticating places," he told her.

As they entered, a deliciously perfumed, yet invigorating fragrance greeted them.

They proceeded at once to the *Appetizer*, which was a large room, hermetically closed, in which sat several hundred people, reading or talking.

The two sat down on leather-upholstered chairs and looked at a humorous daily magazine which was projected upon a white wall, the pages of the magazine changing from time to time.

They had been in the room but a few minutes when Alice exclaimed:

"I am ravenously hungry and I was not hungry at all when we entered. What kind of a trick is it?"

"This is the Appetizer," Ralph exclaimed laughing, "the air in here is invigorating, being charged with several harmless gases for the purpose of giving you an appetite before you eat—hence its name!"

BOTH then proceeded to the main eating salon, which was beautifully decorated in white and gold. There were no attendants and no waiters, and the salon was very quiet except for a muffled, far-off murmuring music.

They then sat down at a table on which were mounted complicated silver boards with odd buttons and pushes and slides. There was such a board for each patron. From the top of the board a flexible tube hung down to which one fastened a silver mouthpiece, that one took out of a disinfecting solution, attached to the board. The bill of fare was engraved in the board and there was a pointer which one moved up and down the various food items and stopped in front of the one selected. The silver mouthpiece was then placed in the mouth and a button was pressed. The liquid food which one selected would then begin to flow into the mouth, its rate of speed controlled by the red button. If spices, salt or pepper were wanted, there was a button for each one which merely had to be pressed till the food was as palatable as wanted. Another button controlled the temperature of the food.

Meats, vegetables, and other eatables, were all liquefied and were prepared with utmost skill to make them acceptable. When changing from one food to another the flexible tube, including the mouthpiece, were rinsed out with hot water, but the water did not flow out of the mouthpiece. The opening of the latter closed automatically during the rinsing and opened as soon as the process was terminated.

While eating, they reclined in the comfortably upholstered leather arm-chair. They did not have to use knife and fork, as was the custom in former centuries. Eating had become a pleasure.

"Do you know," said Ralph, "it took people a long time to accept the scientific restaurants.

"At first they did not succeed. Humanity had been masticating its food for thousands of years and it was hard to overcome the traditional habit.

"However, it was soon learned that scientific foods, prepared in a palatable manner in liquid form, were not only far more digestible and better for the stomach, but they actually did away almost entirely with indigestion, dyspepsia, and other ills, and people began to get stronger and more vigorous.

"The scientific restaurants furnished only foods which were nourishing and no dishes hard to digest could be had at all. Therein lay the success of the new idea.

"People at first did not favor the idea because the new way of eating seemed less aesthetic than the old and at first seemed devoid of the pleasures of the old way of eating. They regarded it with a suspicion similar to a twentieth century European observing a Chinaman using his chop-sticks. This aversion, however, soon wore off as people became used to the new mode of eating. It is thought that the close of the century will witness the closing of all old-fashioned restaurants.

"You will notice, however, that the liquid scientific foods are not absolutely liquid. Some of them, especially meats, have been prepared in such a manner that slight mastication is always necessary. This naturally does away with the monotony of swallowing liquids all the time and makes the food more desirable."

After their luncheon, Ralph and Alice rolled "uptown," the former explaining the various sights as they progressed. At Broadway and 389th street, in a large square, a petrified animal stood upon a pedestal. The girl, desiring to know what it represented, approached and read this inscription, hewn in the stone:

*72° Fahrenheit.

PETE
The last Horse in Harness in the
Streets of New York
Died on this Spot
June 19th, 2096 A. D.

"The poor thing," she said, "it looks so pitiful, doesn't it? To think that once the poor dumb animals were made to labor! It is much better nowadays with electricity doing all the work."

Ralph smiled at this very feminine remark. It was like her, he thought tenderly, to feel sympathy for even this former beast of burden.

AS they turned to leave the pedestal, the girl made an involuntary shrinking movement towards him. He looked up and saw, advancing toward them on telemotor-coasters, a tall dark man, a little younger than himself. The newcomer ignoring Ralph utterly, rolled up to Alice.

"So you are enjoying the sights of New York," he said, with no other greeting, and with a disagreeable smile on his lips.

"Yes," said the girl coldly, " I *was* enjoying them, very much."

He bit his under lip in an annoyed fashion, and a dull flush mounted to his hair. "I told you I'd follow you if you ran away," he said in a lower tone.

Ralph, unable to catch the words, but reading a menace in the fellow's look, stepped forward. Alice turned to him eagerly and put her hand on his arm.

"What is next on our program, Ralph?" she asked in a clear voice, while at the same time she pressed his wrist with her fingers as a signal for him to go on.

As if Fernand had not existed, she moved away, her hand still on Ralph's arm. "Please, please," she murmured as he would have turned back.

"That fellow needs his head punched," muttered Ralph savagely.

"Don't make a scene—I just couldn't bear it," she pleaded. Looking down at her he saw that she was on the verge of tears.

"I'm sorry," he said gently.

"I'm so ashamed!" she said pathetically. "What must you think!"

"That I should go back and knock his head off," said Ralph. "But if you ask me not to, I won't. I suppose that was Fernand?"

She looked at him in astonishment. "Do *you* know him?"

"Your father told me."

"Oh," she said, troubled, "father shouldn't have done that. But I suppose he was afraid of a meeting of this sort."

"How long has he been following you around?"

"Oh, for ages, it seems. Really, about a year. I never liked him, but lately he's been perfectly horrid, and acts in such a threatening way—you saw him. I can't see why he should take the trouble to annoy anyone who loathes him as I do. But let's forget it. We have had such a wonderful day that I don't want it spoiled." And then timidly, with downcast eyes: "I called you Ralph. You must have thought me very forward, but I wanted him to think—"

She stopped suddenly, and in confusion. And then, her natural gayety coming to her rescue: "Heavens, the more I say, the worse I make it, don't I?"

"It sounded fine to me," said Ralph, falling in with her mood, "I hope you will always talk like that to me."

And laughing together, they rolled on.

CHAPTER V.
New York A. D. 2660

BEING much interested in sports, she desired to know presently how the modern New Yorker kept himself in condition. For his answer, Ralph stopped at a corner and they entered a tall, flat-roofed building. They took off their coasters, stepped into the electro-magnetic elevator and ascended the fifty odd stories in a few seconds. At the top, they found a large expanse on which were stationed dozens of flyers of all sizes. There was a continuous bustle of departing and arriving aerial flyers and of people alighting and departing.

As soon as Ralph and Alice appeared, a dozen voices began to call: *"Aerocab, sir, Aerocab, this way please!"* Ralph, ignoring them, walked over to a two-seated flyer and assisted his companion to the seat; he then seated himself and said briefly to the "driver," *"National Playgrounds."* The machine, which was very light and operated entirely by electricity, was built of metal throughout; it shot up into the air with terrific speed and then took a northeasterly direction at a rate of ten miles per minute, or 600 miles per hour.

From the great height at which they were flying it was not hard to point out the most interesting structures, towers, bridges, and wonders of construction deemed impossible several centuries ago.

In less than ten minutes they had arrived at the National Playgrounds. They alighted on an immense platform and Ralph, leading Alice to the edge, where they could see the entire playgrounds, said:

"These National Playgrounds were built by the city in 2490, at the extreme eastern end of what used to be Long Island, a few miles from Montauk.* An immense area had been fitted up for all kinds of sports, terrestrial and aquatic as well as aerial. These municipal playgrounds are the finest of the world and represent one of New York's greatest achievements. The City Government supplied all the various sport paraphernalia and every citizen has the right to use it, by applying to the lieutenants in charge of the various sections.

"There are playgrounds for the young as well as for the old, grounds for men, grounds for the women, grounds for the babies to romp about in. There are hundreds of baseball fields, thousands of tennis courts, and uncounted football fields and golf links. It never rains, it is never too hot, it is never too cold. The grounds are open every day in the year, from seven in the morning till eleven at night. After sunset, the grounds and fields are lighted by thousands of iridium wire spirals, for those who have to work in the daytime.

"As a matter of fact, all the great baseball, tennis, and football contests are held after sundown. The reason is apparent. During the daytime, with the sun shining, there is always one team which has an advantage over the other, on account of the light being in their eyes. In the evening, however, with the powerful stationary light overhead, each team has the same conditions and the game can be played more fairly and more accurately."

RALPH and his companion strolled about the immense grounds watching the players and it was

*Since this was written, a national playground has actually been created at Montauk, L. I. A rather strange coincidence.

Converting solar heat into electrical energy.

not long before he discovered that she, like himself, was enthusiastic about tennis. He asked her if she would care to play a game with him and she acquiesced eagerly.

They walked over to the dressing building where Ralph kept his own sport clothes. Since the girl had no tennis shoes, he secured a pair for her in the Arcade, and they sauntered over to one of the courts.

In the game that followed, Ralph, an expert at tennis, was too engrossed in the girl to watch his game. Consequently, he was beaten from start to finish. He did not see the ball, and scarcely noticed the net. His eyes were constantly on Alice, who, indeed, made a remarkably pretty picture. She flung herself enthusiastically into her game, as she did with everything else that interested her. She was the true sport-lover. She cared little whether she won or not, loving the game for the game itself.

Her lovely face was flushed with the exercise, and her hair curled into damp little rings, lying against her neck and cheeks in silken clusters. Her eyes, always bright, shone like stars. Now and again they met Ralph's in gay triumph as she encountered a difficult ball.

He had never imagined that any one could be so graceful. Her lithe and flexible figure was seen to its best advantage in this game requiring great agility.

Ralph, under this bombardment of charms, was spellbound. He played mechanically, and, it must be admitted, wretchedly. And he was so thoroughly and abjectly in love that he did not care. To him, but one thing mattered. He knew that, unless he could have this girl, life itself would not matter to him.

He felt that he would gladly have lost a hundred games when she at last flung down her racket, crying happily: "Oh, I won, I won, didn't I?"

"You certainly did," he cried. "You were wonderful."

"I'm a little bit afraid you let me win," she pouted. "It really wasn't fair of you."

"You were fine," he declared. "I was hopelessly outclassed from the beginning. You have no idea how beautiful you were," he went on, impulsively. "More beautiful than I ever dreamed anyone could be."

Before his ardent eyes, she drew back a little, half pleased, half frightened, and not a little confused.

Sensing her embarrassment, he instantly became matter-of-fact.

"Now," he said, "I am going to show you the source of New York's light and power."

A few minutes later, after both had changed their shoes, they were again seated in an aerocab and a twenty minute journey brought them well into the center of what was formerly New York state.

They alighted on an immense plain on which twelve monstrous meteoro-towers, each 1,500 feet high, were stationed. These towers formed a hexagon inside of which were the immense *helio-dynamophores*, or sun-power-generators.

The entire expanse, twenty kilometers square, was covered with glass. Underneath the heavy plate glass squares were the photo-electric elements which transformed the solar heat *direct* into electric energy.

The photo-electric elements, of which there were 400 to each square meter, were placed in large movable metal cases, each case containing 1600 photo-electric units.

Each metal case in turn was movable, and mounted

on a kind of large tripod in such a manner that each case from sunrise to sunset presented its glass plate directly to the sun. The rays of the sun, consequently, struck the photo-electric elements always vertically, never obliquely. A small electric motor inside of the tripod moved the metal case so as to keep the plates always facing the sun.

In order that one case might not take away the light from the one directly behind it, all cases were arranged in long rows, each sufficiently far away from the one preceding it. Thus shadows from one row could not fall on the row behind it.

At sunrise, all cases would be almost vertical, but at this time very little current was generated. One hour after sunrise, the plant was working to its full capacity; by noon all cases would be in a horizontal position, and by sunset, they again would be in an almost vertical position, in the opposite direction, however, from that of the morning. The plant would work at its full capacity until one hour before sunset.

EACH case generated about one hundred and twenty kilowatts almost as long as the sun was shining, and it is easily understood what an enormous power the entire plant could generate. In fact, this plant supplied all the power, light, and heat for entire New York. One-half of the plant was for day use, while the other half during the daytime charged the chemical gas-accumulators for night use.

In 1909, Cove of Massachusetts inventd a thermo-electric sun-power-generator which could deliver ten volts and six amperes, or one sixteenth kilowatt in a space of twelve square feet. Since that time inventors by the score had busied themselves to perfect solar generators, but it was not until the year 2469 that the Italian 63A 1243 invented the photo-electric cell, which revolutionized the entire electrical industry. This Italian discovered that by derivatives of the radium-M class, in conjunction with tellurium and arcturium, a photo-electric element could be produced which was strongly affected by the sun's ultra-violet rays and in this condition was able to transform heat *directly* into electrical energy, without losses of any kind.

After watching the enormous power plant for a time, Alice remarked:

"We, of course, have similar plants across the water but I have never seen anything of such magnitude. It is really colossal. But what gives the sky above such a peculiar black tint?"

"In order not to suffer too great losses from atmospheric disturbances," Ralph explained, "the twelve giant meteoro-towers which you notice are working with full power as long as the plant is in operation. Thus a partial vacuum is produced above the plant and the air consequently is very thin. As air ordinarily absorbs an immense amount of heat, it goes without saying that the helio-dynamophore plant obtains an immensely greater amount of heat when the air above is very clear and thin. In the morning the towers direct their energy towards the east in order to clear the atmosphere to a certain extent, and in the afternoon their energy is directed towards the west for the same purpose. For this reason, this plant furnishes fully thirty per cent. more energy than others working in ordinary atmosphere."

As it was growing late they returned to the city, traversing the distance to Ralph's home in less than ten minutes.

Alice's father arrived a few minutes later, and she told him of the delightful time she had had in the company of their distinguished host.

Shortly after they had had dinner that evening Ralph took his guests down to his *tele-theater*. This large room had a shallow stage at one end, with proscenium arch and curtain, such as had been in use during the whole history of the drama. At the rear of the room were scattered a number of big upholstered chairs.

When they had seated themselves, Ralph gave Alice a directory of the plays and operas that were being presented that night.

"Oh, I see they are playing the French comic opera, *La Normande*, at the National Opera to-night," she exclaimed. "I have heard and read much of it. I should like very much to hear it."

"With the greatest of pleasure," Ralph replied. "In fact, I have not heard it myself. My laboratory has kept me so busy, that I have missed the Opera several times already. There are only two performances a week now."

He walked over to a large switchboard from which hung numerous cords and plugs. He inserted one of the plugs into a hole labeled "National Opera." He then manipulated several levers and switches and again seated himself with his guests.

In a moment, a gong sounded, and the lights were gradually dimmed. Immediately afterward, the orchestra began the overture.

A great number of loud-speaking telephones were arranged near the stage, and the acoustics were so good that it was hard to realize that the music originated four miles away, at the National Opera House.

When the overture was over, the curtain rose on the first act. Directly behind it several hundred especially constructed telephots were arranged in such a manner as to fill out the entire space of the shallow stage. These telephots were connected in series and were all joined together so cleverly that no break or joint was visible in the rear part of the stage. The result was that all objects on the distant stage of the National Opera were projected full size on the composite telephot plates on the tele-theater stage. The illusion was so perfect in all respects that it was extremely hard to imagine that the actors on the telephot stage were not real flesh and blood. Each voice could be heard clearly and distinctly, because the transmitters were close to the actors at all times and it was not necessary to strain the ear to catch any passages.

BETWEEN the acts Ralph explained that each New York playhouse now has over 200,000 subscribers and it was as easy for the Berlin and Paris subscribers to hear and see the play as for the New York subscriber. On the other hand, he admitted that the Paris and Berlin as well as the London playhouses had a large number of subscribers, local as well as long distance, but New York's subscription list was by far the largest.

"Can you imagine," mused Alice, "how the people in former centuries must have been inconvenienced when they wished to enjoy a play? I was reading only the other day how they had to prepare themselves for the theater hours ahead of time. They had to get dressed especially for the occasion and even went so far as to have different clothes in which to attend theaters or operas. And then they had to ride or perhaps walk to the playhouse itself. Then the poor things, if they did not happen to like the production, had either to sit all through it or else go home. They probably would have rejoiced at the ease of our tele-theaters, where we can switch from one play to another in five seconds, until we find the one that suits us best.

"Nor could their sick people enjoy themselves seeing a play, as we can now. I know when I broke my ankle a year ago, I actually lived in the tele-theater. I cannot imagine how I could have dragged through

those dreary six weeks in bed without a new play each night. Life must have been dreadful in those days!"

"Yes, you are right," Ralph said. "Neither could they have imagined in their wildest dreams, the spectacle I witnessed a few days ago.

"I happened to be passing this room and I heard such uproarious laughter that I decided to see what caused it all. Entering unnoticed, I found my ten-year-old nephew 'entertaining' half-a-dozen of his friends. The little rascal had plugged into a matinee performance of 'Romeo and Juliet' playing at the 'Broadway'—in English of course. He then plugged in at the same time into *Der Spitzbub*, a farce playing that evening in Berlin, and to this, for good measure, he added *Rigoletto* in Italian, playing at the 'Gala' in Milan.

"The effect was horrible, of course. Most of the time, nothing but a Babel of voices and music could be heard; but once in a while a single voice broke through the din, followed immediately by another one in a different language. The funniest incident happened when, at the 'Broadway,' Juliet called: *Romeo, Romeo, where art thou, Romeo?* and a heavy comedian at the Berlin Theatre howled: *Mir ist's Wurst, schlagt ihn tot!*

"Of course, everything on the stage was blurred most of the time, but once in a while extremely ludicrous combinations resulted between some of the actors at the various theaters, which were greeted with an uproar by the youngsters."

As he concluded the anecdote, the curtain rose once more, and the audience of three settled back to enjoy the second act of the opera.

Later, when it was all over, they went down to the street floor at Ralph's suggestion, where they put on their tele-motor-coasters, preparatory to seeing more of New York—this time by night.

THE party proceeded to roll down Broadway, the historic thoroughfare of New York. Despite the fact that it was 11 o'clock at night, the streets were almost as light as at noonday. They were illuminated brilliantly by the iridium spirals, hanging high above the crossings. These spirals gave forth a pure, dazzling-white light of the same quality as sunlight. This light moreover was absolutely cold, as all electrical energy was transformed into light, none being lost in heat. Not a street was dark—not even the smallest alley.

James 212B 423, as well as his daughter, lingered over the superb displays in the various stores and they entered several to make a few purchases. Alice was much impressed with the automatic electric packing machines.

The clerk making the sale placed the purchased articles on a metal platform. He then pushed several buttons on a small switchboard, which operated the "size" apparatus to obtain the dimensions of the package. After the last button was pressed, the platform rose about two feet, till it disappeared into a large metal, box-like contrivance. In about ten to fifteen seconds it came down again, bearing on its surface a neat white box with a handle at the top, *all in one piece.* The box was not fastened with any strings or tape, but was folded in an ingenious manner so that it could not open of its own accord. Moreover, it was made of Alohydrolium, which is the lightest of all metals, being one-eighth the weight of aluminum.

The automatic packing machine could pack anything from a small package a few inches square up to a box two feet high by three feet long. It made the box to suit the size of the final package, placed the articles together, packed them into the box which was not yet finished, folded the box after the handle had been stamped out, stenciled the firm's name on two sides and delivered it completely packed, all within ten to fifteen seconds.

The box could either be taken by the purchaser or the clerk would stencil the customer's name and address upon the handle, place a triangular packet-post stamp on the box and drop it into a chute beside the counter. It was carried down into the *Packet-Post Conveyor*, which was from seventy-five to one hundred feet below the level of the street, where it landed on a belt-like arrangement moving at the rate of five miles an hour. The action was entirely automatic and the chute was arranged with an automatic shutter which would only open when there was no package immediately below on the moving belt. This precluded the possibility of packages tumbling on top of each other and in this way blocking the conveyor-tube.

When the package had landed on the conveyor-belt, it traveled to the nearest *Distributor Office*, where the post office clerk would take it from the belt and see if it had the proper postage stamps on it. The stamp was then machine-cancelled and after the clerk had noted the address, he routed it to the sub-station nearest to the addressee's home. Next he clamped upon the package an automatic metal "rider" which was of a certain height, irrespective of the size of the package.

The package with its rider was placed on an express conveyor belt traveling at the rate of 25 miles an hour. This express belt, bearing the package, moved at an even speed, and never stopping, passed numerous substations on the way. At the correct sub-station the rider came against a contact device stretching across the belt at right angles, at a certain height. This contact arrangement closed the circuit of a powerful electro-magnet placed in the same line with the contact, a few feet away from the express belt. The electro-magnet acted immediately on the metal package (Alohydrolium is a magnetic metal), drawing it in a flash into the sub-station from the belt. If there was another package right behind the one so drawn out, it was handled in the same manner.

AFTER the package had arrived at the sub-station, it was despatched to its final destination. Another rider was attached to it and the package placed on a local conveyor belt passing by the house to which it was addressed. On arriving at the correct address, its rider would strike the contact overhead, which operated the electro-magnet, pulling the package into the basement of the house, where it fell on the platform of an electric dumb-waiter. The dumb-waiter started upward automatically and the package was delivered at once.

By this method a package could be delivered in the average space of forty minutes from the time of purchase. Some packages could be delivered in a much shorter time and others, which had to travel to the city limits, took a much longer time.

"How wonderful!" Alice exclaimed after Ralph had explained the system. "It must have taken decades to build such a stupendous system."

"No, not quite," was the reply. "It was built gradually by an enormous number of workers. The tubes are even now extended almost daily to keep pace with the growth of the city."

From the stores, Ralph took his guests to the roof of an aerocab stand and they boarded a fast flyer.

"Take us about 10,000 feet up," Ralph instructed the driver.

"You haven't much time," the man answered, "at 12 o'clock all cabs must be out of the air."

"Why?"

"Today is the 15th of September, the night of the

aerial carnival, and it's against the law to go up over New York until it's all over. You have twenty-five minutes left, however, if you wish to go up."

"I forgot all about this aerial carnival," said Ralph, "but twenty-five minutes will be time enough for us if you speed up your machine."

The aerial flyer rose quickly and silently. The objects below seemed to shrink in size and within three minutes the lights became fainter.

In ten minutes an altitude of twelve thousand feet had been reached, and as it became too cold, Ralph motioned to the driver not to rise higher.

The spectacle below them was indescribably beautiful. As far as the eye could see was a broad expanse studded with lights, like a carpet embroidered with diamonds. Thousands of aerial craft, their powerful searchlights sweeping the skies, moved silently through the night, and once in a while an immense transatlantic aerial liner would swish by at tremendous speed.

Most beautiful of all, and wonderful, were the *Signalizers.* Ralph pointed them out to his guests, saying:

"In the first period of aerial navigation, large electric lamps forming figures and letters were placed on housetops and in open fields that the aerial craft above might better find their destinations. To aerial vessels flying 5,000 feet or higher, such signals were wholly inadequate, as they could not be correctly read at such a distance. Hence the signalizers. These are powerful searchlights of the most advanced type, mounted on special buildings. They are trained skyward and shoot a powerful shaft of light directly upward. No aerial craft is allowed to cross these light shafts. Each shaft gives a different signal; thus the signalizer in Herald Square is first white; in ten seconds it changes to red and in another ten seconds it becomes yellow: Even an aerial liner at sea can recognize the signal and steer directly into the Herald Square pier, without being obliged to hover over the city in search of it. Some signalizers have only one color, flashing from time to time. Others more important, use two searchlights at one time, like the one at Sandy Hook. This signalizer has two light shafts, one green and one red; these do not change colors, nor do they light periodically."

From on high, Ralph's guests marveled at these signalizers, which pierced the darkness all around them. It was a wonderful sight and the weird beauty of the colored shafts thrilled Alice immeasurably.

"Oh, it is like a Fairyland," she exclaimed. "I could watch it forever."

BUT presently the aerocab was descending rapidly and in a few minutes the strong light from below had obliterated the light shafts. As the craft drew closer, the streets could be seen extending for miles like white ribbons and the brilliantly lighted squares stood out prominently. They landed, at the stroke of twelve, and Ralph found three unoccupied chairs on the top of one of the public buildings and only then did they notice that hundreds of people were seated, watching the sky expectantly.

At the last stroke of twelve, all the light below went out and simultaneously the light shafts of all the searchlights. Everything was plunged in an utter darkness.

Suddenly overhead, at a great height, the flag of the United States in immense proportions was seen. It was composed of 6,000 flyers, all together in the same horizontal plane. Each flyer was equipped with very powerful lights on the bottom, some white, some red, others blue. Thus an immense flag in its natural colors was formed and so precisely did the flyers co-operate that, although they all were at least 50 feet from each other, the appearance to those below was that of an unbroken silk flag, illuminated by a searchlight. The immense flag began to move. It passed slowly overhead, describing a large circle, so that the entire population below obtained a perfect view.

Everyone applauded the demonstration. Then, as suddenly as it had appeared, the flag vanished and all was once more in darkness. Ralph explained to his guests that the lights of each one of the aerial flyers had been shut off simultaneously in preparation for the next spectacle.

All at once there was seen an enormous colored circle which revolved with great rapidity, becoming gradually smaller and smaller. Finally it became a colored disk, whirling rapidly on its axis. In a few seconds, the edge opened and a straight line shot out, the disk unrolling like a tape measure. After a few minutes more, nothing remained of the disk. It had resolved itself into a perfectly straight many-hued line, miles long. Then the lights went out again. The next spectacle was a demonstration of the solar system. In the center a large sun was seen standing still. Next to the "sun" a small red round globe spun rapidly about it, representing the planet Mercury. Around both the sun and the "planet" Mercury revolved another globe, blue in color; this was Venus. Then followed a white orb, the "Earth" with the moon turning about it. Next came the red planet Mars with its two small moons, then green Jupiter and its moons, and Saturn in yellow. Uranus was orange and lastly came Neptune in pink, all globes and their moons traveling in their proper orbits around the "sun." While the spectacle was in progress, a white "comet" with a long tail traveled across the paths of the planets, turned a sharp curve around the "sun," its tail always pointing away from that body, recrossed the orbits of the "planets" again on the other side and lost itself in the darkness.

Several other spectacles were presented, each more superb than the preceding one. The carnival closed with a light-picture of the Planet Governor. This was exhibited for fully five minutes during which time the applause was continuous.

"We have never seen such a marvelous spectacle," James 212B 423 declared. "You Americans still lead the world. Upon my word, the old saying that 'Nothing is impossible in America,' still holds good."

It was after one when they reached the house, and Ralph suggested a light lunch before they retired for what remained of the night. The others assented and Ralph led the way to the *Bacillatorium.*

The Bacillatorium, invented in 2509 by the Swede 1A 299, was a small room, the walls and bottom of which were composed of lead. On each of the four sides were large vacuum bulbs on pedestals. These tubes, a foot in height and about six inches thick and two feet in diameter, were each equipped with a large concave radio-arcturium cathode. The glass of the tube in front of the cathode had a double wall, the space between being filled with helium gas.

The rays emanating from the cathode, when the tube was energized with high oscillatory currents, were called *Arcturium Rays* and would immediately destroy any bacilli exposed to them for a few seconds. Arcturium Rays, like X-Rays, pass through solid objects, and when used alone burn the tissue of the human body. It was found, however, that by filtering arcturium rays through helium, no burns would result, but any germ or bacillus in or on the body would be killed at once.

The bacillatorium was prescribed by law and each citizen ordered to use it at least every other day, thus making it impossible for the human body to develop contagious diseases. As late as the twentieth century

more than half the mortality was directly attributable to diseases communicated by germs or bacilli.

The bacillatorium eradicated such diseases. The arcturium rays, moreover, had a highly beneficial effect on animal tissue and the enforced use of the bacillatorium extended the span of human life to between one hundred and twenty and one hundred and forty years, whereas in former centuries three score and ten was the average.

CHAPTER VI.

"Give Us Food"

THE following day was set aside for a visit to the Accelerated Plant Growing Farms. It had been known for hundreds of years that certain plants, such as mushrooms, could be fully developed in a few days. Plants or vegetables grown under glass and the temperature within kept at a high point, would grow at great speed and be ready for the market long before those grown in the open.

But only recently, as Ralph explained to Alice, had it been possible to do this on a large scale. To be sure, certain vegetables, like asparagus, lettuce, peas, etc., had been produced in hothouses for hundreds of years, but these, after all, were luxuries, and could hardly be classed as essentials.

When, about the year 2600, the population of the planet had increased tremendously and famines due to lack of such essentials as bread and potatoes had broken out in many parts of the world, it was found vitally necessary to produce such necessities on a larger scale and with unfailing regularity. These farms became known under the term of Accelerated Growing Farms, and were located in every part of the world. The first (and now obsolete) European and African farms were built along the lines of the old-fashioned hothouses. The European farms had simple horizontal steel-latticed roofs, with ordinary glass panes, permitting the sunlight to penetrate to the soil beneath. While covering huge acreages, they were not heated artificially, using only the sun's rays to accelerate plant growth. As compared with Nature's single crop of wheat or corn, two could be made to grow in the same season by means of these super hothouses.

Similar farms were used in America until Ralph undertook their study and approached the subject from a scientific angle. One of his first efforts was to obtain greater heat for these huge hothouses. One of these hothouses is about three miles long and half the width. Ralph took the existing hothouses, which were simply oblong steel and glass boxes, and built a second hothouse box covering each of them, thus creating a double-walled, air-locked hothouse. The second glass-paneled wall was about two feet inside the outer one. This left dead air locked between the walls, and as air is a poor heat conductor, the heat in the hothouse was retained longer, particularly during a cold night.

Ralph and Alice left early in the morning, winging their way in an aeroflyer toward northern New York, where there were numerous Accelerated Growing Farms. When the farms came into view, the entire country below, so far as the eye could see, appeared to be dotted with the glass-covered roofs of the plants, reflecting the sunlight and affording an unusual sight. Alice marveled at their number, for while she had seen some of these farms in Europe, she had never seen so many grouped together and of such immensity.

Within a few minutes, they landed near one of the giant hothouses. The manager led them inside of the farm labeled No. D1569.

D1569 was exclusively a wheat growing farm. Where Mother Nature used to grow one crop of wheat a year, Ralph's latest Accelerator made it possible to grow four, and sometimes five crops a year. In the old-fashioned European farms such as Alice knew, only two crops could be grown.

"How is it possible," she asked, "that you can obtain three more crops a year than we do in Europe?"

"IN the first place," said Ralph, "it may be taken as an axiom that the more heat you supply to plant growth, the quicker crops will grow. Cold and chilly winds retard plant growth. Electricity and certain chemicals increase the rate of growth, a fact that has been known for many centuries. It is, however, the scientific application of this knowledge that makes it possible to raise five crops a year. The European farms use only the heat of the sun to stimulate plant growth, but during the night, when the temperature drops, growth is practically nil.

"Notice that the top and sides of our hothouses have two walls. In other words, one hothouse is built within another. The air locked between the two hothouses is an excellent heat insulator and even though the sun is low at 4 o'clock, the temperature is practically unchanged in the hothouse, at 8 or 9 o'clock in the evening. Even in the winter, when the sun sets about 4 o'clock and it is cold, we are able to store up enough heat during the day to keep a high temperature as late as 7 and 8 o'clock. If we did nothing between the hours of 8 in the evening and 8 in the morning, the temperature would continue to fall to a point where no plant growth would be possible.

"Here in America we had to have a greater production to supply our huge population. It was a pure case of necessity. So we had to employ artificial heating during the night.

"If we start sinking a shaft into the earth, the heat increases rapidly as we go down—more quickly in some parts of the world than others. On an average, the temperature rises about one degree Fahrenheit each 100 feet of depth. We found it economic, therefore, to use the earth's own heat to heat our farms.

"By means of high speed drills, we can cut a three-foot shaft 3,000 feet deep in the earth in less than a month. We go down until we strike a temperature around 100 to 120 degrees Fahrenheit. Then we lower steel tanks into the cavity and run pipes up to the surface. The tanks are filled with water and two larger pipes run from each tank into the circulating system of pipes, around the lower walls throughout the length and breadth of the farms. The shafts are then closed at the top and we have a circulating system that is both cheap and efficient. The hot water continually rises into the pipes and circulates. As it cools, it flows down again into the tanks, where it is reheated and rises again. Thus the temperature of our farms is uniform all the year around and plant growth is as rapid during the night as during the day.

"Heat alone, however, is not sufficient. It would give us only a normal growth. We wanted five crops a year. I put my research forces to work studying fertilizers. While the old nitrogen fertilizers were excellent, they were not suitable for high pressure, high speed growing methods. We evolved chemicals which were both cheap and easy to apply. We found that small quantities of *Termidon*, when mixed with water and sprayed over the field by overhead sprayers, which you will see running along the ceiling, would accelerate the growth of the crops enormously.

"This liquid *Termidon* is sprayed over the entire length and breadth of the field before planting time, so that the soil becomes well soaked. The *Termidon* immediately turns the soil into a rich, dark stratum, the

best soil for potatoes, wheat, or corn. No other fertilizer need be used, the *Termidon*, applied after every growth, giving the soil all the vitality necessary."

They were now in the field, when suddenly Alice asked:

"What is the peculiar tingling in the soles of my feet, that I feel as we walk along? You are using some electrical vibrations, I suppose."

"You guessed correctly," Ralph replied. "With all our artifice, the speed of the plant growth had not been accelerated sufficiently. I therefore insulated the inside hothouse from the ground. The inside hothouse rests upon glass blocks, and is electrified by high frequency currents. The entire area is sprayed day and night with a high frequency current, in the use of which we found was the real secret of driving plant growth ahead at enormous speed. The theory of course is nothing new. It has been known for centuries. What is new, however, is the method. It makes all the difference in the world if the current density is too high or too low, if it is direct or alternating current, for instance. I found that the quickest way to accelerate plant growth by electricity was to send the current from the growing plant toward the ceiling, and the current must be direct, pulsating, but not alternating."

RALPH asked for a discharge pole from one of the attendants. It was a metal pole about seven and a half feet high. In the middle it had a long glass handle which Ralph grasped. He then set the pole vertically so that its top was about six inches from the glass ceiling. A roaring shower of fine sparks leaped from the steel frame of the ceiling to the top of the pole.

"See," said Ralph, "there is the current we use in accelerating the growth of our plants."

Removing the pole, Ralph continued: "The electrical current density per square foot is not very high and the wheat does not get a very great amount of electricity during the twenty-four hours. *The steadiness of the force applied is what counts.*"

After luncheon, during which they ate some of the bread made from wheat grown on the premises, they went to an adjoining farm, also a wheat farm, where harvesting was in full progress. Machinery, suspended from overhead tracks, cut the wheat rapidly with circular scythes. All the wheat being of the same height, the machine cut the wheat almost directly below the heads, dropping them on a conveyor, which carried the real harvest to a central distribution point. Another machine immediately followed the cutter, grasping the stalks that were still standing, unerringly *pulled out the stems*, straw, roots and all. Thus the roots were entirely removed and the soil loosened, obviating plowing. Within a few hours following cutting, the last stem was out. The field was then sprayed with the liquid *Termidon* from overhead. Within another three hours, sowing began, also from overhead pipes.

Going to an adjoining plant, they saw a bare field with almost black soil, ready to be sowed. An attendant, at Ralph's request, pulled a switch and immediately Alice witnessed a seed rain from the overhead pipes.

"The seed," Ralph explained, "is supplied to these tubes by means of compressed air. The tubes are perforated, and when air pressure is applied, the seed, flowing through the tubes, is ejected evenly—just so many seeds to a given area. Closing the openings of the pipes automatically as the seeding proceeds, means that only a given quantity of seed will fall upon any given square foot of soil. This makes for scientific planting, and we raise just the exact quantity of wheat we want."

Spellbound, Alice watched the seed-rain. Like a wall of rain it slowly receded into the distance until finally it disappeared. "How long does it take to sow this field?" she asked.

"From two to three hours, depending upon the size of the field. This particular field is about eight miles long and three miles wide. The process should be completed within about three and a half hours."

"And when will this crop be ready for the harvest?" Alice wanted to know.

"In about seventy days from now the wheat will be ready to cut."

Alice walked along thoughtfully and then inquired whether the great cost of such an undertaking would not make the growing of the foodstuffs prohibitive.

"Quite the contrary," Ralph replied. "We are now growing wheat, corn, potatoes, and many other foodstuffs, at a much lower cost than our ancestors did five or six hundred years ago. You see, it is the installation of the hothouses and machinery that is costly, but these glass and steel buildings will last for centuries with proper care. The frames are made of non-rusting steel which needs no painting. The glass lasts for hundreds of years. The labor we use in planting and harvesting is a mere fraction of what was used in olden times. Thus, for sowing and harvesting this plant, eight by three miles, we require only twenty people. This is a very much smaller number than was used on a small old-fashioned farm.

"We waste nothing. We have no poor crops, and we get three or four times as much as our ancestors did."

THEY stepped up to a glass case containing samples of wheat grown for hundreds of years, showing that a head of wheat grown in the year 1900 was about three inches long, while the present year's crop showed a length of more than six inches, or more than twice as much flour content per stalk. Ralph also pointed out to Alice that the modern wheat stalk was much bigger in circumference than the ancient ones, which, he explained, was attributable to the greater weight of the modern wheat. The old stalks could not possibly have supported such a great weight of grain, so it was necessary to cultivate bigger stalks.

Ralph went on: "As I said before, we waste nothing here. The harvested hulks go to a paper mill, a few miles away, and are converted into a first class paper. A few decades ago an entirely new paper process was invented. Where straw was once used for making so-called strawboard or cardboard, the finest commercial papers are now being made from the straw grown right here. We no longer annihilate our forests to make paper pulp. Since the invention of the straw paper process, chopping trees for paper purposes has been forbidden and all the paper in this country is now made exclusively of straw chemically treated."

A potato farm was seen the same afternoon, the processes in this and other vegetable growing plants being under somewhat different conditions than those in the wheat farm.

It was dark when Alice and Ralph returned to wheat farm No. D1569, and found that the manager of the plant had prepared an elaborate supper for the two, informing Alice that *everything* set before her had been gathered the same day. The wheat had been harvested that morning, the grains had been artificially aged by heat, flour had been made, and the bread had just been baked. He said, somewhat proudly, that this was probably a record.

The entire meal consisted of vegetables, all grown in plants in the vicinity. There were fresh peas, fresh asparagus, new potatoes, fresh lettuce, juicy apples, and many delicacies.

The streets were illuminated brilliantly by the iridium spirals, hanging high above the crossings. These spirals gave forth a pure, dazzling-white light of the same quality as sunlight. This light, moreover, was absolutely cold, as all electrical energy was transformed into light. Not a street was dark—not even the smallest alley.

For dessert the manager brought in, on a great silver tray, a number of new crossfoods, which as yet had not been seen in the open market. There was, the *appear*, a cross between an apple and a pear, which had all the good qualities of the apple and all the good qualities of the pear. There was also a delightful combination of plum and cherry, a canteloupe with a faint taste of orange, and cherries as big as a good-sized plum.

Tea was served from tea leaves grown in one of the farms and harvested the same day. The manager also showed Alice cigarettes and set before Ralph a box of cigars, made from freshly harvested tobacco. The leaves had been aged rapidly by dry heat in a partial vacuum.

Both thanked the manager for the novel treat. After dining, they walked into the wheat growing farm. It was now dark outside, but in the hothouse, the wheat for miles and miles seemed to be aglow in a light purple haze. A faint half-crackling, half-swishing sound was heard. The points of the wheat seemed to be almost luminous.

"This is the night appearance of the electricity you felt this afternoon," said Ralph. "During the daytime you do not see the faint discharge, but in darkness it becomes luminous. One pole of the high frequency generator is connected with the soil and the other with the steel framework of the hothouse. Without this electric current we would not be able to grow more than two, or at the utmost, three crops a year.

"It is also necessary to vary the strength of the current during the day. With full sunshine and maximum heat we do not need as much current as we use during the night. Several hundred years ago, when using somewhat similar methods that had not as yet been perfected, it was necessary to use artificial light during the night, as plants need light for growth. We found, however, that the electric current with the soft light which you see glowing now, is sufficient for the purpose and the plant does not require any other light."

Alice stood for many minutes silently watching the beautiful sight of the glowing purple field, listening to the faint crackling discharge of the electric current as it leaped from the points of the wheat into the air. They finally left and flew back to New York.

THE next day, Ralph took Alice to one of the city's Synthetic Food Laboratories. While flying towards it, Ralph explained that while the farms which they had looked over yesterday were for the purpose of intensively raising real foodstuffs, there were many commodities that could not be so grown, such as sugar and milk, which were now made synthetically. As chemists had known for many hundreds of years, sugar was nothing more than a simple carbohydrate, whereas milk was composed of an emulsified mixture or casein, lactic acid, butter, water and minor constituents.

As the population increased, it was neither possible, nor profitable to obtain these foods by natural means, and it was found necessary to resort to the chemist.

They alighted at one of these chemical laboratories which manufactured sugar, milk, cooking fats, butter and cheese.

There was really not much to see, save large boiler-like chemical retorts, large white enameled vats, and a lot of pumps and electric motors. The manager explained that sugar was made out of sawdust and acids. The sawdust, he explained, was digested in the huge white enameled steel vats by means of certain acids. After the digesting process was completed, other chemicals were added, the ensuing syrup then being run through retorts and finally emerging as a stream of white liquid sugar.

The manager handed Alice a piece of clear, transparent sugar, as well as several specimens of crystallized sugar, which she ate delightedly, exclaiming laughingly that "it was the best sawdust she had ever eaten."

They next visited the synthetic milk section, where hundreds of thousands of gallons of milk were produced every day. This being a recent discovery, the manager explained it in detail.

"Milk," he said, "has been known since the dawn of humanity, but only when man became somewhat civilized did he learn how to obtain milk from animals, such as the goat and the cow. It took thousands of years to domesticate these animals, and it is not known at what period man first began to milk these domestic animals for his own supply of milk.

"Men of an inquisitive nature must have asked themselves the question for thousands of years, 'Why grow grass, let the cow eat the grass, digest it, and finally turn it into milk? Why not eliminate the cow entirely?' The thought, while elemental, had no actual basis or foundation for centuries, because the chemical process of the intermediate stages between the grass and the final milk were too complicated and were not at all well understood. Only during the last few years has the problem been solved satisfactorily.

"Now we grow the fresh grass, which we put into these large retorts, where the grass is digested just the same as if it were in the stomach of the cow. By the addition of salts and chemicals, we imitate this digestive process, and by eliminating solids and the liquids, we finally get a milk that is not only better than the original cow's or goat's milk, but has many qualities not possessed by cow's milk.

"Try this glass of artificial milk," he said to Alice, handing her a glass of rather unappetizing-looking liquid of a slightly pale green color, not too clean looking and somewhat thick. Alice tasted it, however, and found that it tasted exactly like a good rich cow's milk. The manager asked Alice to close her eyes and take a good drink. She did so, and exclaimed, in surprise, that it tasted exactly like rich, creamy milk.

The manager then explained that synthetic milk was free from the bacteria which gave the milk its white color. Moreover, the fat-content was much higher than cow's milk, and, there being a greater percentage of sugar present, the milk tasted sweeter. Certain added salts gave it a distinguishing taste.

From this milk, he further explained, its fat could be extracted, and the usual array of milk products, such as butter, all sorts of cheeses, etc., could be made much better than from cow's milk, which never ran uniform.

After inspecting the laboratory, Alice and Ralph sampled a number of products, all of which tasted excellent—better, if anything, than the natural products. The manager added, "You will find our synthetic products are far easier to digest, and are more wholesome than the natural product. The reason is that we have eliminated all of the disease-carrying microbes and bacteria, retaining only the beneficial ones. We can control this very easily in our plants, which is more than the cow or goat can do."

CHAPTER VII.
The End of Money

A FEW days later, Alice, while rolling along one of the elevated streets of the city with Ralph, inquired how the present monetary system had been evolved: "You know," she confided, "I know very little of economics."

"Well," said Ralph, "all monetary systems of the past or present are based on one principle—the exchange of one thing for another. At first it was simply a bartering or swapping of such things as a goat for a pig, or a string of beads for a piece of cloth. Only much later did money evolve. Before we had coins, certain rare shells were used as tokens. Still later, precious metal was exchanged for goods, using the weight of the metal as a basis. Later on, coins were developed, and still later on, paper money replaced part of the coins. Where the shells, the precious metals, and, later the metal coins, had intrinsic value, the paper money had no such value. The public accepted with faith and confidence a piece of paper across which was printed the guarantee that the bearer of it would receive so many metal dollars in exchange for the piece of paper. The paper money was built upon confidence that the people had in the government which issued the paper money.

"Very few people ever thought of going to a bank or to the government's treasury to exchange the paper money for gold or silver coins. Instead, they freely circulated this paper money among themselves, and after people became accustomed to it, they accepted the paper money to the practical exclusion of gold and silver. Particularly in the former United States did this system reach a high development; more so than in old Europe, where paper money was used in conjunction with gold or silver coins.

"In the United States, however, nothing but paper money was eventually used, even to the exclusion of the smallest coins. Whereas up to a certain period the dollar bill was the smallest paper money unit used, this was later split into the former coin denominations of fifty cents, twenty-five cents, ten cents, five cents, and one cent. It was found that small paper bills the size of former postage stamps were not very practical when issued in separate pieces, so the printed tape coins, which we have today, came into extensive use.

"The small metal box you carry, and from which you unroll your printed perforated tape, still represents the old paper money. When you, therefore, make a purchase today and you unroll fifty cents in ten cent denominations on your perforated roll, you are using a portion of the old system.

"But the real monetary system is built upon confidence. It could not be otherwise today because we have no more precious metals. When about 95 years ago, the Frenchman P865 + finished the transmutation of all the precious metals, the death-knell of the old monetary system was sounded. Everybody could make gold and silver for less than iron used to cost in the old days. Consequently, if you had a one hundred dollar bill that said on its face that you could exchange it for one hundred dollars' worth of gold, you could have gone to the treasury and received five twenty dollar gold pieces, which, however, were not worth more, perhaps, than one or two cents. So of what use was the one hundred dollar bill?

"When P865 + made his announcement, it caused neither panic nor confusion. Several centuries prior there would have been panic, but the world had been progressing in knowledge, and understood that commerce and economics are stabilized by confidence.

"There is only one thing in this world that has a real value, and that is man's work. You can replace almost everything else with something else, but you can not replace labor. The modern economic structure is, therefore, reared entirely upon man's work.

"WHEN the check came into use, in the 19th century the monetary system underwent a great change. Instead of people paying what they owed by means of coins or banknotes, they took to paying each other by means of a written piece of paper—the check. Billions upon billions of dollars and cents changed hands, simply by signing a check to some one else, the check clearing through the bank. While one account was credited, another was debited. There was little actual money that changed hands, either between the man who wrote the check and the man who received it, or even between the banks who cleared the checks. In other words, this entire check system was based upon credit. Your received a check for one hundred dollars from a man who owed you one hundred dollars. You took this check in good faith because you knew that he must have the one hundred dollars in the bank—otherwise he probably would not make out the check. You sent the check to your bank, which, in turn, collected it from the bank in which your debtor had his account. In all these transactions no real money ever changed hands. It was credit, pure and simple, all the way through.

"So when P865 + demonstrated his synthetic metals, the situation did not change at all. The people appreciated the fact that the government in one way or another, must be good, and that, although the money reserves as figured in metal dollars and cents had become valueless, every one knew that the country was not founded and based upon valueless metals alone. Incidentally, no government, the entire world over, could have redeemed in gold or silver coin all of its outstanding obligations.

"Therefore, when gold and silver became practically valueless, nothing happened, because actual coins were no longer used, and every one used checks, so that even banknotes had become obsolete.

"But, with the devaluation of the so-called "precious" metals, the governments substituted other values. This was done at first by setting fixed values on property, such as real estate, buildings, manufacturing plants, etc. Valuations of these were made several times a year, and whoever owned such properties was given a "State-value certificate." A building, valued at $50,000 was appraised by the state three or four times or more, a year, and a certificate was given to you which you took to your bank, the latter immediately crediting you with part of the $50,000. If you wanted to sell your property to a friend for $50,000 or more, you would take his check and then demand from your bank the return of the original deed, which in turn would be transferred to your friend. In that case your bank would credit you with the $50,000 check of your friend, while he would have the property.

"Of course the illustration which I gave is not exactly accurate, for the reason that you could not get from your bank the exact amount of the valuation of whatever realty changed hands. The bank advanced about seventy per cent of the appraised value, with certain exceptions. This also was in no wise different from the way our ancestors were accustomed to deal, because in the old days such a transaction would have involved a so-called mortgage. The important difference, however, later on, was that the valuation was made by the state and such valuation was final. This tended to stabilize real estate and property valuations.

"Merchandise, today, is bought and sold the same as it was bought and sold centuries ago—that is by check. So is everything else, including labor. Every workman is, of course, paid by check, which check he can use either in his own bank account or for buying merchandise from his grocer or tailor, getting the difference in a check or otherwise in fractional paper tape coin.

"These government paper tape coins and banknotes—

the few that are being used—instead of being covered by gold and silver bullion, are now covered by real estate bonds or other tangible property."

"But," Alice asked, "suppose there were a panic, as described in some of the ancient books, and everybody ran to the bank at once to get his money, what would happen?"

"Nothing," said Ralph. "Absolutely nothing. Suppose there were a 'panic,' as you call it. In the first place, why should there be one? There is no reason for it and no one nowadays would think of running to the bank and getting his or her 'money.' There is no 'money,' as you call it.

"REMEMBER, the banks are all under government control, and if a bank should fail, which no bank has done for the last four hundred years, the government would be obliged to make good the shortage out of its own resources. If everybody ran simultaneously to every bank throughout the country, a bank would simply make out a check for each total balance, and pass out a check for the amount. Then the next morning, as the people could not eat their checks for breakfast, they would have to do one of two things; either take the check back to the bank and redeposit it, or exchange the check for commodities.

"That means that within twenty-four hours all the checks would have found their way back to the banks and things would be just exactly where they had left off before the 'run' on the bank. As banks are no longer under the necessity of paying in coin or banknotes, but under the law can pay by check, there is no reason why any one should wish to make a 'run' on the bank, simply to get a check."

"But," Alice persisted, "suppose you draw out more than you have to your credit? Suppose you write out a check for more than you have in the bank? What happens then?"

"You probably can answer that just as well as I can," replied Ralph. "To do so is a prison offense, and again, it would do you no good, because following the first offense you would get a warning from the government, and at the second such offense you would get a still stronger warning, and on the third, you would go to jail, because the first two offenses could perhaps be mistakes, but the third could not. On top of this, your account would be withdrawn from all banks and you would not be able to open another account again for ten years, because all checks as you know, are identified with fingerprints in addition to the signature. The fingerprint experts of the government would prevent you from opening another account in any bank anywhere in the country. So no one abuses his checking privilege and no one writes out checks when there are no funds to his credit."

A few days later Ralph took Alice to one of the great industrial artificial cloth works. They flew to Pennsylvania, where the great artificial silk, cotton, and wool mills were located. Ralph explained that during the 20th century silk had finally been made artificially from wood and chemicals. This was then known as artificial silk. But only during the last century had it been possible to manufacture artificial cotton and artificial wool, synthetically from wood and other plant fibres. Moreover, they wore better than real cotton and real wool.

In the enormous plant were immense tanks in which the raw materials were first cooked and then treated by chemicals until the fibres issued in fine microscopic streams from nozzles under hydraulic pressure. The threads were then wound on huge reels. From here the hanks were sent to the spinneries and cloth-weaving mills.

Of particular interest was the new kind of cloth, which was much lighter than wool or cotton, and, at the same time, cooler in summer and warmer in winter. This material was made from cork, which was first pulverized and then afterwards digested by means of chemicals. Under hydraulic pressure, a somewhat thick thread was obtained, which had all the good properties of cork, but none of its poor ones. This cork thread, when woven into cloth, made a texture both light and durable, had a velvety touch to the fingers, and being a poor heat conductor, protected the wearer from heat in the summer and cold in the winter.

A number of combinations were made whereby cork thread and silk thread were spun together, giving an entirely new product, combining all the virtues of silk with those of cork.

CHAPTER VIII.

The Menace of the Invisible Cloak

LEAVING the Pennsylvania mills, the aeroflyer, traveling at high speed, landed the party within a very short time on one of the tall landing buildings in New York. Ralph and Alice made their way down to the elevated roadway, where, at Ralph's suggestion, they put on their power skates, for, as he explained smilingly, it was but a short distance to his home, and the exercise would do them both good and give them an appetite for luncheon.

When they were but a little way from their destination, Ralph became conscious of a faint hissing sound close behind them. Twice he glanced over his shoulder, but the roadway at that hour—it was just before noon—was deserted.

Yet the sibilant sound persisted, seeming to be getting closer and closer, like some persevering insect about to alight.

Alice apparently heard nothing, or perhaps she thought it merely one of the noises of the street, for she chattered on in the gay animated fashion that was one of her charms, oblivious to the fact that the man at her side was so preoccupied that he scarcely replied to her.

For Ralph had now satisfied himself that there was nothing anywhere around them which could cause that untiring pursuant hiss. Then from what secret invisible source did it emanate—and why?

To the scientist, accustomed to explaining the unexplainable, it was ominous—menacing—

Again he turned to look behind him, along the deserted way, and at that moment he heard a stifled cry from the girl beside him. He whirled to face her, and faced—nothing! He was alone in the empty street!

Unbelieving, doubting the evidence of his eyes, he stared about him, too astounded for the moment, by this mystifying and amazing disappearance, to think collectedly.

Above him the sun shone in a clear blue sky, before and behind him stretched the still roadway. Then he was aware of the silence, the deadly quiet. For the hissing had receded into nothingness, and with it, Alice.

As the full force of the catastrophe struck him, something akin to panic seized him. Danger to himself he could have faced with the calm courage of a brave man, but this unseen and unexpected blow from an invisible source, aimed at the girl so close and dear to his heart, smote him with a chill terror that for an instant held him powerless in its grip.

That he should have been careless when she was in

danger—but this was no time for self-reproaches. To act, and to act at once—that was vital.

Thoughts of high frequency wireless waves—of X-rays—of Fernand.

"Fernand!" he exclaimed aloud, and with the name, coherent thought returned. Putting on all possible speed, he covered the distance to his home in a few seconds and dashed up to his laboratory, the while his swiftly-working brain attacked the greatest personal problem that it had ever been called upon to solve.

Having experimented with ultra short waves, he knew that it was possible to create total transparency of any object if the object could be made to vibrate approximately at the same rate as light. He was familiar with the theory, and although he had worked on it at times, he had never seen a practical demonstration of it.* He realized that a machine was in the hands of someone, intent on kidnapping Alice. He knew, too, that a police description would be flashed within a radius of thousands of miles instantly, and it would be necessary for the abductor to keep Alice invisible for some time to come, for fear that some one would see and recognize her. All this flashed through his mind as he assembled a detecting apparatus consisting of a portable aerial and a small box containing a few wireless instruments and a pair of headphones.

THE aerial, by being rotated, could determine the point from which the waves emanated. In ten minutes Ralph had the apparatus rigged up and began rotating the aerial, until a roaring noise was heard in the telephones. He knew that this must be the apparatus producing the invisibility, and within a few seconds he had dashed from the house on his power skates, carrying the detector in front of him. Two of his assistants accompanied him.

The pursuit was on. As they approached the kidnapper, the sounds in the telephones became stronger. They sped along Broadway, while the hastily notified police kept the way open. The rising sound in the 'phones clearly indicated they were headed directly toward the abductor.

They gained steadily on him while the rolling, flying police cleared Ralph's way with their shrieking sirens, while the kidnapper had to pick his way slowly through crowds.

The chase led them into a narrow street on the outskirts of the city.

The sound that came through the telephones was now exceedingly loud, indicating that the quarry was near by. But this very nearness was confusing to Ralph, for the volume of sound prevented him from exactly locating the invisible kidnapper and the girl. In vain he turned the aerial in all directions, seeking one point from which it came louder than another that would determine the course of his pursuit. For the moment he was halted, and, like some hound baffled by the cunning of the fox, he cast about him eagerly, waiting for what he knew must come, the next move of the pursued man.

And then it came—a deepening tone in the telephones, a gradation of sound that to the trained ear of the scientist told him all that he wished to know. With an exultant cry he sprang forward, and dashed through the entrance of a small store.

The proprietor, whose state of mind may best be described by the word "flabbergasted," struggled for some moments in vain for speech, while Ralph and his men, with outstretched hands, eagerly swept from wall to wall.

"Here, here, you fellows," he finally managed to gasp, "what are you after? What are you trying to do? You'll knock something over in a minute. Hey, look out there—there it goes!"

For Ralph had reached around a tailor's dummy, knocking it over as his hands closed upon something behind it, something invisible and yet warm and firm; something that quivered and shrank away at his touch.

The proprietor, rushing forward to pick up the dummy, stopped short, gaping. Ralph's hands, at the moment of contact, vanished into thin air. But in an instant they reappeared, as he drew towards him, out of the influence of the ultra-short waves, what he knew must be the bound and gagged form of Alice.

Once away from the influence of the apparatus, she became visible again. A sack had been tied over her head and shoulders and her hands were tightly bound to her sides. She was still on her roller skates, and her feet had been left free, the sack being sufficient to render her almost wholly helpless, and unable to make any effective resistance.

As Ralph removed the fastenings and released her, she staggered and clung to him, her head dropping in exhaustion.

"Oh," she gasped faintly, "what is it? Where did you go?"

"Water!" exclaimed Ralph harshly to those about him, and the fat storekeeper, trembling with excitement, but withal displaying an extraordinary energy for one, who could never at any time have been a streamline model, made a dive for a vase of flowers on the counter. Grasping the tops of the flowers with one hand he flung them in a corner, and tendered the vase of discolored water to Ralph, panting the while as one who has run his race, and emerged triumphant.

"I said water—not mud," said Ralph in exasperation, as he rubbed the girl's cold hands between his own warm ones.

"Well, that's water, ain't it?" said the man, and Ralph glowered at him.

"Please," said Alice, trying to withdraw her hands, "I'm all right; indeed I am. I was just a little dizzy for a moment, but it has all passed now."

The color returned to her pale cheeks with a rush, and she straightened herself, and turned away in some confusion, her hands instinctively going to her hair, the gesture that women have ever used when at a loss for words.

IN the meantime, Ralph's two assistants had found the ultra-wave machine by the very simple method of feeling about the spot where the girl had been discovered. When their hands disappeared they knew that they had it, and Ralph ordered some water thrown upon it, which had the twofold result of stopping its activity and of bringing it into view.

Having assured himself that Alice was unharmed and recovering from the shock resulting from her misadventure, the scientist made a minute examination of the instrument. It was a complicated instrument and one totally strange to him. As he studied it, he felt a growing conviction that this was no earth-made machine. He knew it was conceived and made by a Martian. Undoubtedly it was the work of some master of science, a true mental giant.

Then where, he asked himself, did Fernand—if it was Fernand—secure it, and how? His object, of course, was obvious. He was evidently prepared to go to any lengths to secure the girl for himself. Had he not so threatened her? His method of attack had been

*In RADIO NEWS of June, 1925, it told how John L. Reinartz, working with ultra-short radio waves, thought that he had made it possible to look through solid metal plates with the naked eye. The metal, gold, if thin enough, transmits green light, and if still thinner, transmits purple light.

ingenious—fiendishly ingenious. Here was no mean antagonist, no petty enemy. Here was a man whose cunning would tax Ralph's resourcefulness to the utmost.

When he finally turned away from his inspection, he found Alice quite herself again. She was listening to the store proprietor's version of the affair, a story that, under the stimulus of Alice's dark eyes, lost none in the telling, for where facts failed him, imagination did not.

"—flew open before my very eyes," he was saying when Ralph turned around, "as if by unseen hands. And then this terrible sound,—I can scarcely describe it, more like" (his eye fell on the ultra-ray apparatus), "more like a great machine than anything else. I says to myself, says I, 'There's something strange about this,' I says, 'I'd better be on the lookout, I might be needed, for it looks to me,' I says, 'as though someone was up to something.'"

As a matter of fact, he had thought the opening of the door due to a passing wind, and the hissing of the machine, which has already been likened to the buzz of an insect, the humming of a bee, let in by the same agency.

"And then that black man, he gave me a fright for fair," he went on.

"What about him? What was he like?" asked Ralph sharply.

"Ah," said the proprietor, swelling with importance, "that's just what I've been asking myself. Strange we should hit on the same thoughts, ain't it?"

"Very," commented the scientist, with wasted irony. "Can't you give any description of him? When and how did you see him, anyway?"

The proprietor put his hands into his pockets and swayed backward and forward on the balls of his feet. He surveyed each member of his little audience with glances of poignant meaning, as one who had much of consequence to tell—all in good time.

Finally he spoke. "He was black," he said, "black all over."

"Yes, yes," exclaimed Ralph impatiently, "you told us that before. Can't you give us something definite to go by? His face, for instance. What was that like?"

THE other leaned forward and tapped him on the chest impressively.

"Ay, that was black too," he said.

"Black!" cried Ralph.

"Black it was—all covered with a black cloth," said the none-too-intelligent shopkeeper smugly. "He come right out of the air before my very eyes, all black, with a black cloth on his face, and rolled out of my store like a cyclone."

"You should have tried to hold him," said Ralph.

"Well, I gave him a look, I can tell you. He won't forget it in a hurry. I just stood there and looked at him—like this."

He screwed up his face in so alarming a manner that one of Ralph's assistants was moved to remark that it was a wonder he didn't drop dead with a face like that.

"What d'ye mean?" demanded the owner of the countenance in question.

"I said," repeated the assistant, "it was a wonder he didn't drop dead. I would have. It's all I can do to look at you right now."

Alice, unable to control her laughter any longer, hastily murmured something about "fresh air" and went to the door.

Ralph, keeping his own face straight by a valiant effort, ordered his men to lift the ultra-ray machine and take it back to the laboratory to give it a more minute inspection at his leisure.

The girl and the man were very silent on their way back to Ralph's home. A tragedy had been narrowly averted and each felt that this first attempt might by no means be the last.

Only once did the girl voice her fears.

"You know," she said, "I am certain it was Fernand." She hesitated for a brief moment and then held out her hand. In the palm lay a small heart-shaped object of a curious translucent green, delicately carved. It was pierced for a chain, and indeed, a part of the chain still hung there, but it had been broken off short, and only a few links remained.

"What's that?" asked Ralph.

"A charm that Fernand always carries. He showed it to me once. He's very superstitious about it, he told me. And I found it back there in the store when I went to the door."

Ralph looked very thoughtful.

"Then he must have brought that machine from Mars," he said with decision. "And with such resources at his command, I wonder what his next move will be."

CHAPTER IX.

The Conquest of Gravitation

ALICE and her father had been invited, the next day, to Ralph's laboratory, as he wished to show them some of his latest discoveries. They found him sitting in front of his desk while he was engaged in dictating scientific data to thin air.

"Ah!" said Alice, as she entered, "you are evidently using some of the methods of my kidnapper. You seem to be dictating to an invisible secretary!"

"Nothing so complicated," said Ralph.

Ralph, who then welcomed them, denied the charge, and went on to explain his new invention to his party.

"The evolution of letter-writing has been a slow and painful one. Our remote ancestors, many thousands of years ago, carved their letters in stone slabs. Later on, the more civilized Egyptians wrote their letters upon papyrus. Still later, upon the invention of paper and ink, communications and letters could be written much better and faster in that improved manner. Later still, the typewriter came into use.

"All of these methods had one great drawback. It was possible to easily falsify such records. While there had been handwriting experts, it happened very frequently in olden times—too frequently, in fact—that a signature on such an important document as, for instance, a will, was forged, and it became a question for handwriting experts to decide whether the signature was genuine. But even the handwriting experts were not always right.

"It has often occurred to me that it should be possible to use the human voice as its own document so that it could be preserved in a manner different from the phonographic method discovered in the 20th century. Of course, under that method it was possible for one to speak a will, but it was a clumsy way and was rarely used, on account of its high cost, and because the voice was not reproduced faithfully. Furthermore it was difficult to make copies of a talk. Then, too, the disk or cylinder upon which the phonographic records were made were very fragile, and could be broken, either accidentally or on purpose.

"The method you see me using is phonetic, and it is practically impossible to falsify such a record. Watch how the machine works."

Ralph reseated himself at his desk and started to talk. Facing him on the desk was a machine of about the shape of an old-fashioned typewriter, except that there were no keys. There were a few dials and knobs and from the top of the cabinet a white sheet of paper

slowly emerged as Ralph dictated. When he had finished, he pressed a button and the entire sheet was ejected. It was covered with queer-looking wave lines, similar to the lines made by a seismograph when recording earthquakes,—queer little parallel lines with humps at the tops that increased from very short wave-like curves to long ones. The entire sheet was covered with these lines in indelible ink. Ralph showed Alice the page and went on explaining:

"The page which you see here is an exact record of my voice. Just as no two fingerprints are alike in this world, no two voices are alike either. Each has certain characteristics produced by certain overtones in the voices of the various individuals. The pronunciation of individuals varies, so does the intonation, so does the speed of talking, so does the timbre of the voice, and there are a hundred other differences that to an expert are observable immediately.

"Suppose, then, during my life I have recorded a great many documents similar to this one. The waves traced on this piece of paper have certain characteristics, which are entirely individual. Here are two sheets of paper, both containing the Lord's Prayer, but spoken by two different individuals in my office. Both of these individuals have voices that are very nearly alike, yet, you can see how great a difference there is between the lines. On one sheet the lines are much heavier and swing in an apparently different manner.

"By reference to authentic documents of this character, it will be impossible to falsify any record by having some one else make such a spoken record. A will, or any other important document, will, in the future, be made by this machine and will do away with many court cases and much business squabble, and much shirking of responsibility.

"Furthermore, by my method it is possible with the same machine to make as many as twenty-five copies at one time, with the original. This is done by a chemical process in the machine itself, the copies being simply thin chemical papers which are developed at the same time as the voice-writing is made.

"Reading these pages is not as difficult as you might think. It would be necessary, however, to know the phonolphabet. The phonolphabet is not very much different from the alphabet that you now know. Every syllable and every consonant used by you makes a certain impression in my machine, and while it may vary, as explained before, still it remains roughly the same, exactly as handwriting by different persons may vary, yet be easily read because the characteristics are similar. The same is true of my machine. By studying the characters of the phonolphabet, it is possible, within a few weeks, to learn how to read a phonetic letter, with the same ease that you read a handwritten or typewritten letter now.

"I expect that in the schools of the future, children will be taught the phonolphabet so that every one will be able to read phonetic records.

"Another feature of my invention is that if you do not wish to read the letter, you can listen to it." Saying this, Ralph inserted the letter into an odd-shaped cabinet, which had a slot at the top. Two grippers slowly began to draw the paper into the inside of the machine. Ralph turned two knobs and pushed a button, and within a few seconds his own voice was heard with unmistakable clarity repeating what he had said fifteen minutes before.

"This machine, likewise, is very simple," said Ralph. "The ink tracing on the paper record is opaque, while the paper itself is more or less transparent under a strong light. A light-sensitive cell on the other side slowly moves from left to right, taking off the entire phonetic record, as it were. This light sensitive cell moves in the same ratio and with the same speed that I originally dictated, and the words are reproduced exactly as I spoke them, by means of a loud-speaking telephone coupled to an amplifier.

"Thus it is now possible to have a double record; an audible and written one, and with the two it is practically impossible to falsify records.

"As you know, there have been some big embezzlement scandals recently and it was not always possible to convict those suspected due to the clever methods which these swindlers used.

"One great advantage of the new system is that it is done entirely by machine and does away with the human element. I do not require my secretary when I dictate. I sit alone in my study or office and simply talk."

* * * * * * * * *

"THERE is one unique place, I am sure you will be interested in." Ralph led the way to the elevator and they quickly shot up to the roof, where they boarded one of Ralph's flyers and within a few minutes were heading north. The machine rose until they were up about 20,000 feet. The cold made it necessary to turn on the heat in the enclosed cab. In the distance, just ahead, there shortly appeared a brilliant spot of light suspended in the dark sky, which quickly increased in size as they approached. From a distance it appeared like an enormous hemisphere with the flat side facing the earth below. As they drew close, they could see that it was a great city suspended in the air, apparently covered with a transparent substance, just as if a toy city had been built on a dinner plate and covered with a bell-shaped globe.

They alighted on the rim, at a landing stage outside the transparent covering. They were soon walking along a warm, beautifully laid out street. Here was neither bustle nor noise. The deepest calm prevailed. There were small houses of an old-fashioned design. There were shops in great profusion. There were playgrounds, neatly laid-out parks. Except for the humans who were walking about, the visitors felt as if they had gone back many centuries.

There were no power roller skates, no automatic vehicles. There were no aeroflyers beneath the glass ceiling. Instead, a serene calm prevailed, while people with happy expressions on their faces were leisurely walking to and fro.

Very much puzzled, Alice wanted to know what this mysterious glass-encased city was.

"This," explained Ralph, "is one of our many vacation cities that I hope will soon dot every part of the world. People are living entirely too intensely nowadays and with the many functions that they have to perform, with all the labor-saving devices they have, their lives are speeded up to the breaking point. The business man or executive must leave his work every month for a few days, if he is not to become a wreck. Heretofore we have sent him to the mountain tops or to the seashore; there he found no rest. The noise, even on top of the mountains, due to aeroflyers and other vehicles did not give a man a real rest. On our floating city there is absolute rest. There is no noise, no excitement, not even a wireless telephone.

"The city, 20,000 feet above the ground, is floating in a perfectly clean and uncontaminated air. This air, while less dense than that below, is renewed automatically every few hours. It is invigorating, just the same as mountain air is, with all its benefits.

"The roof is made of steel lattice work, thick glass panes being fitted in between the steel frames. It is

shaped in the form of a huge dome covering the entire city, which measures about a little over a mile in circumference. The height of the center of the dome from the floor of the city is about 200 feet. At night the city is illuminated by cold light from high frequency wires running below the dome, similar to the system now used to light up our cities.

"The floor upon which the entire city rests is steelonium, and the city is held up by means of anti-gravitational impulse. By neutralizing the gravity for the area below the floating city and a little beyond it, it is possible to keep the floating city at any distance from the earth. In other words, we use a gravitational "screen," and then build a city on top of this screen.

"By charging the gravitational screen at a very high potential, we nullify gravity and as the city no longer has any weight, it can be placed on any level and remain there practically indefinitely. A few air propellers keep the city from being blown away by storms or wind.

"Although it was very cold in our aeroflyer as we came up, it is nice and warm on the streets here. Nor is there any artificial heating during the daytime. There is perpetual sunshine during the day at this level; practically no clouds ever form here.

"The city being entirely roofed over by the glass dome, and the interior being filled with air, the sun quickly heats up the atmosphere. Within two hours after the sun rises, the air is balmy, and it would become stifling hot if the air was not renewed from time to time. Air is a poor conductor of heat, and if the air were not renewed, it would soon be 150 degrees in the shade. Cold air, however, from the outside, is continually drawn in, so that an even temperature is maintained. Only at night is the city heated artificially, as without the sunlight at this altitude, it soon becomes exceedingly cold.

"All the heating is done by electricity, and a uniform temperature is maintained during the night, which is somewhat less than the temperature during the day.

"There is nothing that a man or woman can do up here except rest, and that is precisely what they do. One week's rest up here is equivalent to a month's rest in our own resorts.

RALPH, with Alice and her father, strolled through the suspended city in which the simple life was the keynote. There were recreation parks, gymnasiums, baths of various kinds, such as hydrotherapic and electrotherapic. There were sun parlors and sun baking parks. The din of the city, the curse of man's own handiwork, was absent. Everyone wore either felt or rubber soled shoes. The atmosphere was delightful and restful.

It was with genuine regret that Alice and her father returned to the aeroflyer and back to New York.

That night after dinner Ralph took his guests to a new entertainment that had just become popular. They entered a big building on which, in big fiery letters, was inscribed

GRAVITATIONAL CIRCUS

Ralph explained to his guests that with the invention of the nullifying of gravitation, many new and wonderful effects had been originated. Gravity, he explained, was an electro-magnetic manifestation, in the ether, the same as light, wireless waves, etc. It had been the dream of scientists for hundreds of years to nullify the effect of gravitation. "In other words," Ralph continued, "if you pick up a stone and open your hand, the stone will fall to the ground. Why does it fall? First, because the earth attracts the stone, and second because the stone attracts the earth. There is a definite gravitational pull between the two. The effect of the stone in pulling up the earth is, however, inconsequential, and while the stone does exert a certain amount of pull towards the earth, the latter is so tremendously larger that the effect on the earth is not felt at all.

"'If,' scientists had argued for hundreds of years, 'you could interpose between the stone and the earth a screen which nullified gravitation, the stone would not fall down when let go, but would remain suspended just exactly where you left it.'

"Scientists also argued that if gravitation was an electro-magnetic manifestation of the ether, it should be possible to overcome and nullify it by electrical means. The first work along this line was conducted by Majorana, the Italian scientist in the year 1920. He floated metal balls on top of mercury and claimed to have discovered a diminution of the weight of the balls when thus floated. He thought he had discovered here a means that partially screened gravitation from the iron balls, thus making them lighter.

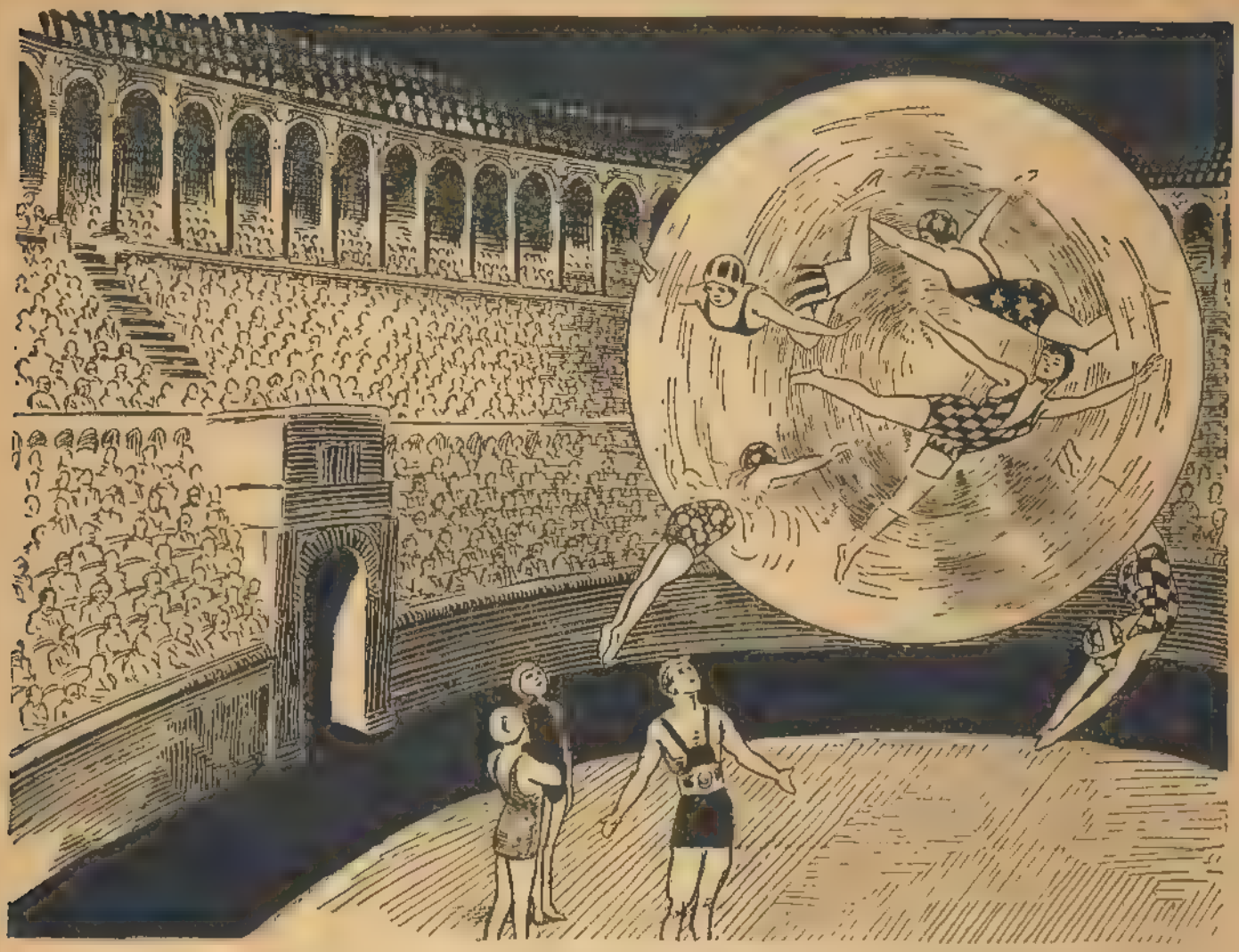
"It took hundreds of years, however, before the correct solution was found. It was known that certain high frequency currents would set up an interference with the gravitational waves, for it had been found in the first part of our century that gravitation was indeed a wave form, the same as light waves, or wireless waves. When this interference between the two waves, namely, the gravitational waves and the electrical waves, was discovered, it was found that a metallic screen charged by electric high frequency waves would indeed nullify gravitation to a certain extent. If you charged a metal netting in this fashion and you weighed yourself on a spring scale on top of the screen, insulated of course from the screen itself, your weight would be, roughly, diminished one-half.

"In other words, about half of the gravitation had been nullified, the other half still remaining. Thus things stood until about two years ago, when I began to occupy myself with the problem. I reasoned that while we had achieved much, still much more remained to be done. Our anti-gravitational screen still let through some of the gravitational waves, or fifty per cent of the energy, which we could not seem to counteract. I felt that it was not so much the effect of the current as the material of the screen which seemed to be at fault. Experimental work along this line convinced me that I was on the right track and that if ever gravitation was to be annulled in its entirety, a screen of a special material would have to be evolved in order to obtain the desired results.

"I finally found that only the densest material known, namely thoro-iridium, would completely stop the gravitational waves, providing that the metal screen was uninterruptedly bombarded with alpha rays which are continually emitted by radium.

"The screen finally evolved was expensive to make at first, but quantity production now has very considerably lowered the price."

BY this time the party had found their seats in the amphitheatre, and they had seated themselves. Seats were all around a ring, which did not look much different from the old-fashioned circus ring, except that it was, perhaps, a little larger. The gravitational screen, Ralph explained, was located below and could not be actually seen. The machinery, too, was located in the basement. A fine wire netting surrounded the entire arena, from top to bottom, the purpose of which became apparent later.



The ball was lit up by strong searchlights, and the entire arena was darkened, as the girls swam within the clear crystal water ball.

It was an old-fashioned horse and bare-back rider act. Suddenly the gravitation was cut off and the horse rose, beating the air with his hoofs, while the rider, in a sitting position, hung on the horse with his legs. The horse and rider no longer having any weight, they could not, of course, entirely control their movements. Both horse and rider at times hung with their heads downwards, then sideways, until finally, by jerking, they arrived in the center of the arena.

The horse had been well trained and ceased pawing the air, and his legs hung limp.

The rider mounted on the back of the horse, and with a slight jump reached the ceiling of the arena, some hundred feet up. Having no weight left, he bounced by the least muscular effort. Pushing against the ceiling with one of his fingers, he bounded down to the floor of the arena, only to rebound again to the ceiling. He kept this up for a few minutes, and then repeated the same thing sideways, where he hit against the wire netting, which was stretched from top to bottom of the arena to keep the performer from falling into the audience.

The gravitational field extended only vertically, but was not in evidence immediately beyond the sides of the arena. Had there been no screen, the performer, when passing outside the gravitational boundary, would have immediately regained his full weight and would have fallen.

The performer could jerk himself around anywhere in the arena, and being a good acrobat, he had no difficulty in reaching his horse. Much care had to be exercised, however, because the slightest kick against the horse would have sent the horse to the opposite side.

Slowly the gravitation was turned on, and both horse and rider sank gracefully towards the ground, where with the full gravitation restored, the horse and rider made their exit.

The next act was one that even Ralph had not seen. Two experts at juggling bounded into the arena and after the gravitation was cut off one of them placed a billiard cue on his forehead, and an old-fashioned hand lamp on top of the cue. The juggler then took the cue away and withdrew jerkily. The lamp remained in the same position, until it was brought down by one of the performers.

The tricks aroused great enthusiasm among the audience. An acrobat, using one of the billiard cues as a standing trapeze, revolved around the trapeze as if it were held securely in place. By jerking around the billiard cue, it was made to appear as if he was actually swinging around under his full "weight."

A beautiful effect was obtained when the jugglers brought several colored glass pitchers, filled with different-colored liquids. When the pitchers were inverted nothing happened, because the liquid, having no weight, could not flow. However, by turning the pitcher upside down and suddenly jerking it away, the colored liquid, due to its own lag or inertia, stayed behind.

Due to the surface tension of liquids, it did not retain the shape of the pitcher, but formed itself immediately into a globe. The jugglers emptied a number of pitchers all in a row, leaving behind the globular liquid balls, formed of water and fruit juices.

The jugglers approached the balls and began to drink, simply by placing their lips against them. They then demonstrated the mobility of the water balls by pushing their fingers into them and cutting the balls in two, the halves immediately becoming new and smaller balls. Then by carefully giving each of the balls a slight push, the water balls would gravitate up to the ceiling of the arena and still having enough momentum left, they would rebound and come back, only to be pushed up again by parchment covered tennis racquets.

This had to be done carefully because the slightest false motion spread out the water balls into flat sheets. The surface tension of the liquid always reasserted itself and the water balls came down sometimes in an elliptical shape. Every time the parchment covered tennis racquet hit the balls, they lost their shape momentarily, but soon became globular again.

The two jugglers finally managed to push the liquid spheres one into another, until finally all balls had been joined into one. This, of course, amalgamated the various colors, but the colors had been made in such a way that the ball became a somewhat dirty-looking white, all the colors having recombined, making one color, just as all the hues of the rainbow, if combined together, make white.

The final act was where a huge water ball, about twenty-five feet in diameter, was pushed to the center of the arena, while a number of pretty girls entered the liquid itself and swam within the ball. The ball was lit up by strong searchlights, and the entire arena darkened, as the girls swam within the clear crystal water ball. When the swimmers needed air, all they needed to do was to push their heads out of the sphere, breathe, and then resume "swimming," or jerking themselves around within the weightless water.

CHAPTER X.

Two Letters

DURING September Alice and her father had remained Ralph's guests, extending their stay at his urgent request. James 212B 423 made a most satisfactory chaperon. If they visited one of the great historical museums, he always managed to disappear in search of some exhibit, leaving the other two to sit on a bench to wait his return, which was often delayed purposely.

But to his daughter and the scientist, time was of little importance, and though the engineer was sometimes gone an hour, when he returned, he would find them still sitting on the bench, sometimes deep in conversation, sometimes absorbed in a silence that meant more than any words could express.

Together they were blissfully happy, apart they were wretchedly lonely.

Ralph, it appeared, had completely forgotten several of his lectures in which he had labelled love as "nothing but a perfumed animal instinct." No lover more abject than he now, none more humble in the presence of his divinity. During those weeks they had arrived at a mutual understanding.

All the world knew and rejoiced in their happiness. Ralph had always been extremely popular with the people. Even the Planet Governor himself had been moved to privately express his approval. Many times had the scientist worried him. Ralph had so often been restive under the restraints which had of necessity to be imposed upon one so important to the earth's progress. And now, with this new influence to hold him, the Governor felt that the task of keeping Ralph contented had been lifted from the Governor's already over-burdened shoulders.

All the world rejoiced—all but two, and for them the knowledge of the two lovers' happiness was gall and wormwood.

One was roused to fury, the other plunged in despair.

To Fernand, the scientist was one hitherto unforeseen obstacle to be removed from his path, in his conquest of Alice. To the Martian, knowing beforehand that his passion was hopeless, the knowledge that she loved another was, nevertheless, a bitter blow. Before, at least, she had been heart-free. Wretched as he had been, bitter as he had been against the laws that made such a union impossible, there had been the barren comfort of the fact, that she belonged to no one else. Now, even that was taken from him, and he felt that he could bear no more.

In his desperation he made up his mind to leave Earth, and immediately booked his passage to Mars. But on the very eve of his departure he found himself unable to make the decision that would separate him from her forever, and the next interplanetary liner, which left Earth for Mars, carried, not himself, but this code letter to his best friend on his distant planet.

New York, September 20, 2660.

To Rrananolh AK 42,

Although I am booked on the *Terrestral* which departs tomorrow, I have cancelled my reservation and consequently will not arrive on Mars November thirtieth as planned. I do not know whether I shall take passage on the next transport or not. In fact, I don't know what I shall do. I am mad with despair and anguish. A thousand times over have I wished that I had never come to this planet!

I have not told you before, but as you have perhaps guessed from my previous letters, I am in love with a Terrestrial woman. Never mind her name. I loved her from the first moment I saw her. You, who have never visited the Earth, can hardly understand. It does not matter.

I have tried in every way to free myself from this mad infatuation, but it is hopeless. Chemicals and Radio-treatments seem but to accentuate my longing for that which is forever beyond my reach. I thought at first that I could conquer myself, but I know now that I cannot, and the knowledge is driving me to madness.

She has never known, and I think no one else here does. I have told none but you, my friend. Always I feared that in some way I might betray myself to her. There are times now when I wish that I had.

And yet—to have her suffer as I am suffering—I could not have borne that.

I will, I suppose, go the way of all Martians who have had the misfortune to care for a Terrestrial. A little *listadinide* injected under the skin will free me from an existence which has become a daily torture unless I find a way to evade the harsh laws.

Please hand the enclosed documents to my Second. If I do not see you again do not grieve for me, but remember our friendship and think sometimes of your unhappy friend.

LLYSANORH'.

LONG after his missive had gone, he sat rigid, motionless, by the window, with unseeing eyes fixed on the city below him. At last he rose with a sigh and left the room. Was there no way out of such misery? Was there no straw he could grasp?

Of a very different caliber was an epistle sent by Fernand 60O 10 to his friend Paul 9B 1261.

New York, Sept. 28th, 2660.

Dear Paul:

You have heard the gossip, but don't fear my having

a broken heart. I am not easily downed, and I have a card or two yet to play in this game.

Fact is, Alice is as hard to conquer as a steelonium wall is to break through. That, however, is to my liking, my dear Paul. I love obstacles, particularly when the goal is as pretty as Alice. I have never wanted her more than now that she has thrown me down. Perhaps if she had ever encouraged me I would not have cared a rap for her. But—this opposition inflames me! Now I will have her. I *will* have her, and she shall love me, mark my words.

I have mentioned to you before the ridiculous Martian, Llysanorh', I believe. It is very amusing to see him staring at Alice with adoration in those enormous eyes of his. I really believe he is in love with her, but these Martians are so self-controlled, it is hard to tell anything about them.

If Alice had fallen in love with this lanky, seven-foot Llysanorh', she would have been lost to me, and to all the rest of the world. That fellow certainly can be sugary when he wants to be. However, she really imagines that she's in love with this crazy scientist, and right now I'm decidedly *de trop*. That worries me very little, I assure you. She will soon learn to love me once I can get her away from him. And I am going to provide for that.

Everything has been arranged, and I am only awaiting my opportunity. If I am successful, I will take her out into space for a few months. My machine is in readiness. It is the latest type, and the finest I have ever seen. Provisions, books, reels for the hypnobioscope, instruments, etc., in fact, everything you can think of is on board. I have even provided a well trained maid. I can assure you Alice won't find it lonesome. Besides, I flatter myself that I can be very entertaining.

Before I close, I must ask you to attend to several matters for me, as per enclosed rolls. You will understand everything better after you read the instructions. I do not expect to be away more than three months at the utmost, and you will see from the gray document that I empower you to take charge of my affairs. I will send you a message from on board the machine if all goes well.—

Until then,

FERNAND.

IT was the night of the full moon. There was a faint touch of crispness in the early autumn breeze that now and again gently ruffled the waters of the ocean. A thousand stars danced lightly in the sky and were reflected in the undulating waves below. And in the moonlit path over the waters hovered an aerocab gleaming silvery white in the radiance.

The cab was far from New York, away from the beaten traffic. Occasionally other aircraft came into view but always at a distance.

To Alice and Ralph, this solitude was Paradise. Night after night they hired an aerocab and flew to this lonely airway, where seated side by side, with only the driver for a chaperon, they were absolutely happy.

The driver was a silent man, who, as long as he was well paid for his time, was content to describe endless circles indefinitely.

On this particular evening Alice seemed, to Ralph, more lovely than he had ever before seen her. In the caressing light of the mellow moon her flowerlike face glowed with a new radiance, and her dark eyes, shadowed with long sweeping lashes, were mistily tender.

Between these two there was no need for words. So perfectly were their thoughts attuned that each knew what the other felt.

And so, presently, their hands stole out and met, and clasped. And it seemed to both that Heaven could hold no greater happiness than this, until, with one accord, they turned their faces to each other, and their lips met. To them nothing existed beyond themselves and their love.

The voice of another aerocab driver hailing them made them realize that there were still ties that bound them to earth, and they moved apart a little self-consciously, as a cab drew alongside their own.

"Having some trouble with my motor," called the newcomer. "Could you let me have a few copper connectors to repair the damage?"

"Sure," returned their driver, and the two cabs came together and were made fast.

Ralph, seeing that his man could attend to the matter, turned away from them towards Alice, and again drew her hand into his own, where it snuggled confidingly.

Quite suddenly he was aware of a sickish, sweet odor, which almost instantly became suffocating. He was conscious of the pressure of Alice's fingers and then blackness overwhelmed him.

CHAPTER XI.

The Flight Into Space

HOW long he was unconscious Ralph did not know, but when he came to his senses, the moon had sunk low on the horizon. He felt unbearably weary and his limbs seemed too heavy to move. For a time he half lay in his seat looking stupidly down at the ocean, his mind a blank.

All at once it dawned upon him that the seat next to him was empty. "Alice, Alice," he muttered, trying to shake off his stupor, "Alice, where are you?"

There was no reply. The driver, his hands on the steering disk, was slumped forward in his seat, his head sunk on his breast.

With a stupendous effort, Ralph managed to open the glass window in front of him. Instantly the strong odor of chloroformal almost overpowered him, and a terrible sensation of nausea forced him to cling blindly to his seat. In a moment it passed and he was able to collect his senses somewhat. His first thought was for Alice. His dimmed sight had cleared sufficiently for him to see that she was not in the cab. He thought she must have fallen into the sea, and in his agony he cried aloud her name again and again.

And then there came to him a recollection of her father's words on the first morning of their visit. He had feared for Alice. Someone had threatened her. Ralph forced his still wandering mind to concentrate. Some one had threatened to kidnap her, and that someone was Fernand 600 10.

He recalled the stranded aerocab. Its helplessness had been a trick to deceive him, and to get near enough to drug him and his driver while they took Alice away.

The thought aroused him from his dreadful lethargy. With a rush, his vitality came back. He flung himself upon the stupefied driver and shook him violently.

The cab was still flying at an even speed in a great circle and Ralph saw that it was imperative that he get control of it at once, for another machine, bound evidently for New York, was bearing down upon the helpless man.

With a powerful shove he got the driver into the auxiliary seat and climbed over, seizing, as he did so, the steering disk. He flung it over, just in time to escape the onrushing cab, whose occupants, as it passed,

leaned out, and in fluent profanity, inquired if he wanted the whole airway.

Unheeding, Ralph set the steering disk toward New York, and proceeded to lighten the cab. Overboard went the glass doors, cushions, matting, even the hood of the machine. Everything that he could wrench off he tossed to the dark water beneath him.

The cab, relieved of the weight of its equipment, shot ahead at tremendous speed, and in less than ten minutes dropped down upon the landing place on top of the scientist's laboratory. Leaving the driver where he was, Ralph dashed into the building. Meeting Peter, he did not stop; he only motioned him to the cab, while he himself sprang to the nearest telephot. And within fifteen minutes every detective and special agent had been notified of the disappearance of Alice. Ralph had immediately transmitted the lost girl's photograph to the Central Office, where it was placed before a telephot connecting with every member of the entire police force, and the picture was reproduced for them in their portable wireless instruments for ten seconds, enabling them to get her features firmly impressed on their minds.

His next act was to call up the Intercontinental Hotel where Fernand had been stopping.

Upon inquiry he was informed that Fernand had left three hours ago with his baggage. His destination was unknown.

"I knew it!" Ralph muttered to himself.

ON second thought it occurred to him that it might be of advantage to visit the hotel, and as it was only a few blocks away he flew over to it, leaving his assistants in charge of his wireless stations, with strict orders to record every message, to tune into everything, and to take the messages down on the recorder disks.

At the hotel he was recognized at once, and as the news had spread over the city like wild-fire, he was treated with every consideration.

He closely questioned everyone and then asked to see the rooms which Fernand 60O 10 had occupied.

The rooms were just as their occupant had left them and Ralph requested that he be undisturbed there for a short time.

He examined every nook and corner without finding anything to give him a clue to Fernand's whereabouts, and he was about to leave, when his eye caught the reflection of a light-ray falling on a bright object under the dresser.

Insignificant as the little metal object was, it was enough to convey a fearful picture to his mind. He recognized it at once as a metal turning belonging to the balancer of the *gyro-gyrotor* of a space-flyer. Evidently the metal part had been dropped and Fernand had not had the time to look for it. Ralph decided that Fernand had obtained a supply of the parts which are only required on a prolonged flight into space.

He was now positive that Fernand 60O 10 had carried off his sweetheart in a space-flyer and that the machine by this time was probably far away from the earth, headed for unknown regions. It would also be practically impossible to follow without knowing the direction of the space-defying machine.

In a daze Ralph returned to his laboratory, where he again called the Central Office. As all space-flyers must be licensed by law, he had no trouble in getting the information he desired. A new machine of a well-known Detroit firm had been registered four days ago, and the description of the owner answered to that of Fernand 60O 10.

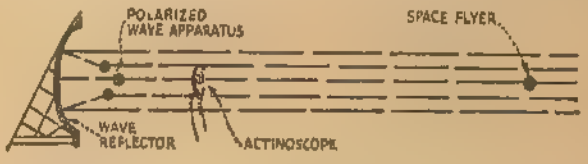
Late as it was, Ralph immediately communicated with the Detroit manufacturer, who, upon hearing his reasons for the request, supplied him with all the necessary details.

Ralph learned from him that the purchaser of the new machine, one of the very latest models, was Fernand, beyond any doubt, and when he was informed that the latter had plentifully supplied himself with spare parts as if for a long journey, and that the cabin had been fitted out as a lady's boudoir, then indeed were his worst suspicions confirmed.

The manufacturer also told him that the entire outside shell was of *magnelium*—an invention of Ralph's—and that this flyer was the first to be equipped with the new metal.

As he concluded his conversation and disconnected, Ralph brought his clenched fist down upon the desk. "Magnelium," he muttered between set teeth, "the only machine out in the universe made with magnelium. Magnelium, my own magnelium, about which no one in the world knows more than I do. Perhaps the odds are not all with you, Fernand, damn you!"

At first thought it might be considered a difficult feat accurately to locate a machine thousands of miles from the earth, speeding in an unknown direction somewhere in the boundless universe. It was no easy matter to the scientist. As far back as the year 1800, astronomers accurately measured the distance between the earth and small celestial bodies, but it was not until the year 2659 that Ralph 124C 41+ succeeded in accurately determining the exact location of flyers, in space, beyond the reach of the most powerful telescope.



A *pulsating polarized ether wave*, if directed on a metal object, can be reflected in the same manner as a light-ray is reflected from a bright surface or from a mirror. The reflection factor, however, varies with different metals. Thus the reflection factor from silver is 1,000 units, the reflection from iron 645, alomagnesium 460, etc. If, therefore, a polarized wave generator were directed toward space, the waves would take a direction as shown in the diagram, provided the parabolic wave reflector was used as shown. By manipulating the entire apparatus like a searchlight, waves would be sent over a large area. Sooner or later these waves would strike a space flyer. A small part of the waves would strike the metal body of the flyer, and these waves would be reflected back to the sending apparatus. Here they would fall on the *actinoscope* (see diagram), which records only reflected waves.

FROM the actinoscope the reflection factor is then determined, which shows the kind of metal from which the reflection comes. From the intensity and the elapsed time of the reflected impulses, the distance between the earth and the flyer can then be accurately and quickly calculated.

The reflection factor of magnelium being 1060, Ralph succeeded in locating Fernand's space-flyer in less than five hours. He found that Fernand's machine at that time was about 400,000 miles distant from the earth and apparently headed in the direction of the planet Venus. A few seconds' calculation showed that he was flying at the rate of about 45,000 miles an hour. This was a great surprise to Ralph and it puzzled him somewhat. He knew that Fernand's machine was capable of making at least 75,000 miles an hour. Ralph rea-

soned that if he were in Fernand's place, he would speed up the flyer to the utmost.

Why was Fernand flying so leisurely? Did he think himself secure? Did he think that nobody could or would follow? Or was he having trouble with the anti-gravitator?

Ralph could not understand it. However, his mind had already been made up. He would pursue Fernand even though it took him into the parts of the solar system yet uncharted, and, if necessary—kill him!

It was now noon, and he gave sharp, quick instructions to his assistants, ordering his space-flyer, the "Cassiopeia," to be made ready at once. Provisions sufficient to last for six months were put on board and Ralph himself installed a great number of scientific instruments, many of which he considered he might find useful. He also ordered a large number of duplicate parts of the flyer's machinery to be stowed on board in case of emergency.

To the astonishment and dismay of Peter and the others, the scientist announced his intention of making the journey alone.

"The fight is to be man against man, brain against brain," he said as he stood by his space-flyer which was in readiness upon the tower-platform. "Today it is not brute force that counts, but scientific knowledge. I will demonstrate to the world that crimes of this kind need not be tolerated.

He stepped upon the running-board as he spoke and was about to step into the flyer, when the sound of an aeroflyer descending close by made him hesitate. It was a government flyer, and even as Ralph paused, it landed on the platform beside his own machine, and a smartly uniformed young official sprang from the seat beside the driver. Saluting Ralph he handed him a transcribed telegram with the words:

"MESSAGE from the Planet Governor, sir."

Dismay seized the scientist, as, breaking the seal of the wrapper, he read the printed words:

Unipopulis, Sept. 34, 2660,
Planet Governor's Capitol.

I have just received news of the calamity that has befallen you.

I extend to you my sincere sympathy.

I will this afternoon place at your disposal six Government space flyers, the crews of which are absolutely under your instructions.

I must, however, caution you not to enter into any pursuit in person.

As Planet Governor, it is my duty to advise you that you have not the right to place your person in unnecessary danger.

Allow me furthermore to point out to you that under the law "+" scientists are not allowed to endanger their lives under any circumstances.

I therefore command you not to leave the earth without my permission.

I have ordered your space-flyer to be guarded.

In high esteem,

WILLIAM KENDRICK 21K 4,
The 18th Planet Governor.

To
Ralph 124C 41 +,
New York.

Ralph read the radiogram twice before he folded it slowly and deliberately thrust it into his pocket.

Then slowly withdrawing his hand and extending it to the government official, he said:

"I must obey orders."

The official took the proffered hand, and no sooner did he grasp it than he stiffened and became as rigid as stone.

With one bound Ralph was in his machine, crying to the stupefied audience:

"Don't worry about him. I pricked his hand with a little *catalepsol*. In fifteen minutes he will be all right again."

He slammed the door of his space-flyer and simultaneously the machine rose as if shot from a cannon. In ten seconds he was lost to sight.

SINCE the Dark Ages, men have had a powerful longing to leave earth and visit other planets. Towards the end of the twenty-first century, when atmospheric flying had become common, scientists began seriously to think of constructing machinery to enable man to leave the confines of the planet to which humanity had been chained for ages.

Towards the beginning of the twenty-second century economic conditions had become acute and the enormous population of earth, which had passed the twelve billion mark, clamored for an adequate outlet, which the planet itself could no longer furnish.

The moon was regarded with longing eyes, and although that body was known to have no atmosphere and was known to be sterile, it was equally known that earth's scientists and engineers felt that they could, in a few years' time, make it habitable.

Atmospheric flying machines were, of course, totally unsuited, as they could not even reach the limits of the earth's atmosphere, only forty miles away.

Obviously, to reach the moon or any other celestial body, it was necessary to devise a method of overcoming the enigmatical force known as the earth's gravity, which chains all bodies to the planet.

A multitude of inventions and suggestions were made, but none proved to be of any value until the *anti-gravitator* was invented by the American 969L 9 in the year 2210.

This scientist had made extensive studies of the gyroscope and had finally evolved a machine which when set in motion would rise freely and continue to rise as long as power was supplied.

The action, moreover, was purely gyroscopic.

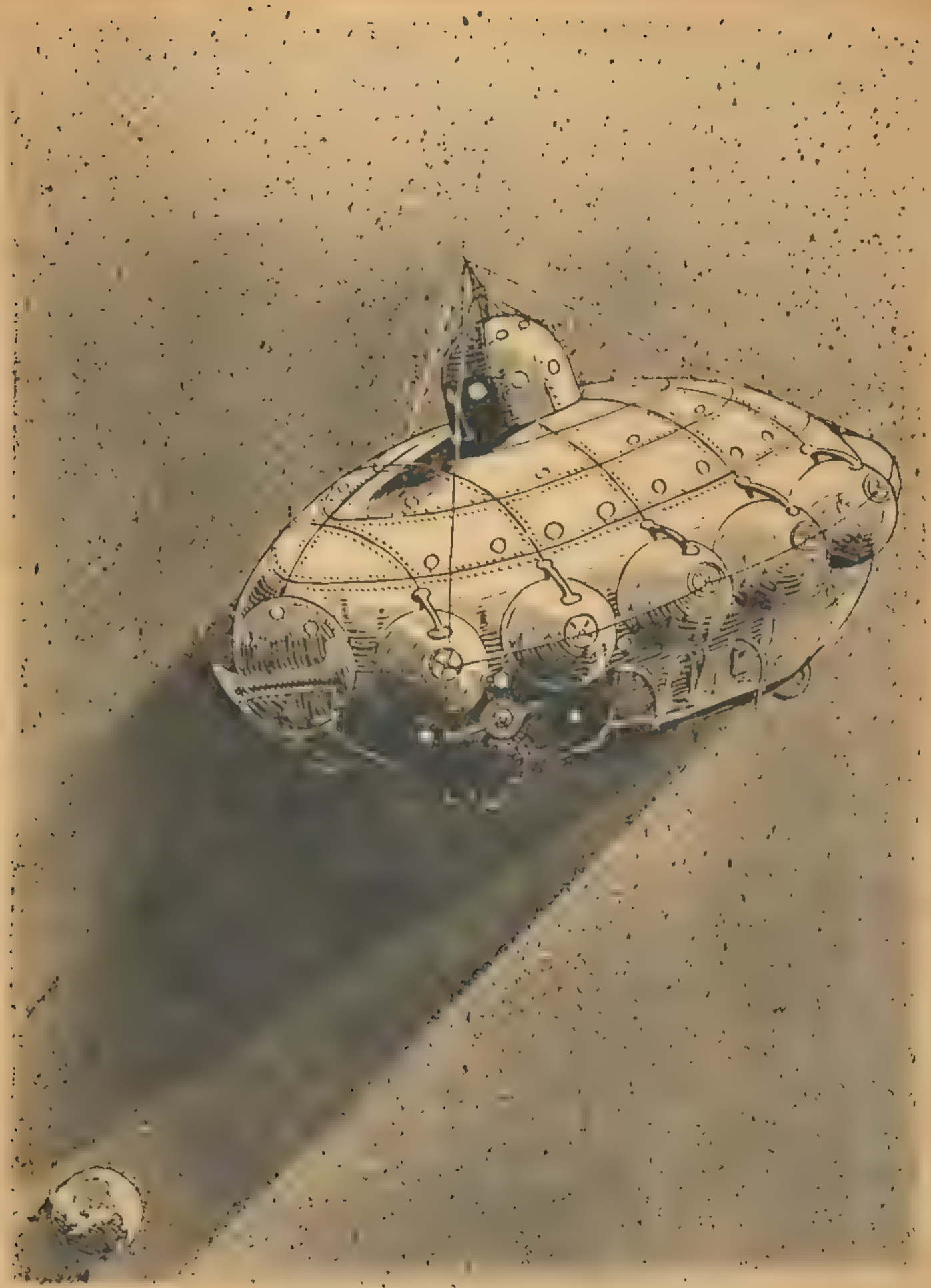
969L 9 took a large hollow sphere (the rotor), inside of which he built a number of independent gyroscopes, all of which traveled in fixed orbits. The large sphere, which hung in a gyroscopic frame, was made to spin around on its axis at great speed. This sphere thus acted as the fly-wheel of a gyroscope and as such was not influenced by the so-called *horizontal gravity*. As in the case of simple gyroscopes, its axis would always be in a vertical line as long as the spheric rotor was in motion.

If, however, the independent gyroscopes inside of the sphere were set in motion by means of electrical current, the *vertical gravity* (weight) was overcome, the entire contrivance rising into the air, its rising (lifting) speed being directly proportional to the speed of the enclosed gyroscope rotors.

From 969L 9's experimental work the anti-gravitators were perfected, and it became possible to lift a weight of 1,000 kilograms with an anti-gravitator weighing but 12 kilograms.

Space-flyers were equipped with from six to twelve large anti-gravitators attached to various points of their shells, all of which could be worked in unison, or operated independently in order to control the direction of the flyer.

As Ralph's space-flyer rushed through the atmosphere, the friction of the machine against the air made the in-



As Ralph was flying toward the sun, Earth, being directly behind him was fully illuminated and appeared like a full moon. The continents and oceans were visible except where temporarily obscured by mist or clouds.

terior uncomfortably hot in spite of the fact that the machine had triple walls, the spaces between being filled with poor heat conducting materials.

However, after the flyer had left the atmosphere, the stellar cold rapidly made itself felt.

Ralph then took his bearings, after he had verified, by means of the polarized wave transmitter that Fernand's flyer was still headed towards Venus. He then locked the steering disk and the space-flyer continued its journey in a straight line of pursuit toward the machine of Fernand.

This done, Ralph flashed a radiogram asking the Planet Governor's indulgence for disobeying the law. Then he took his first look at the earth, which, since he was traveling at the rate of 80,000 miles an hour, had shrunk to the dimensions of a medium-sized orange. As he was flying toward the sun, earth, being directly behind him, was fully illuminated and appeared like a full moon. The continents and oceans were visible except where temporarily obscured by mist or clouds.

THE general aspect of the earth as seen from Ralph's flyer was that of a delicate faint blue green ball with white caps at each of the poles. The ball was surrounded by a pinkish ring near the circumference. This was the earth's atmosphere, the white caps being snow and ice around the north and south poles.

The brilliantly lighted earth was silhouetted against the inky black sky in sharp contrast.* The moon, hidden behind the earth, was not in evidence when Ralph first looked earthward.

The stars shone with a brilliancy never seen from earth; distant constellations which ordinarily cannot be seen, except with a telescope, were plainly visible to him, in outer space.

The sun shone with a dazzling brilliancy in a pitch-black sky, and had he looked directly into its rays he would have been stricken blind.

The heat of the sun in the outside space, whenever it struck an object, was tremendous. Had he held his hand against the glass window of the space-flyer where the sun could strike it full, his hand would have been burned in a few seconds.

There was no night in the outer space (within the bounds of the planetary system). The sun shone uninterruptedly.

Time was an unknown quantity. Had it not been for the chronometer, reeling off seconds and minutes according to man's standard, time would cease to exist in a space-flyer.

To a man who had never left the earth, the phenomena encountered inside of a space-flyer in the outer space were still more amazing.

"Weight" is synonymous to us with the gravitation of the earth. The denser a celestial body, the greater its gravity. The larger such a body is, the more strongly it will attract its objects. The smaller the body (if it has the same density), the smaller its force of attraction.

Thus a man weighing eighty kilograms on a *spring* scale on the earth, would weigh but thirty kilograms on the planet Mars. On the sun, however, he would weigh 2232 kilograms.

Inside of a space-flyer, which had an infinitely small gravity, objects weighed practically nothing. They were heaviest near the walls of the machine, but in the exact center of the flyer, *all objects lost their weight entirely.* Thus any object, regardless of its earthly weight, *hung freely suspended in the center of the space-flyer.* It could not move up or down of its own accord, but hung motionless, like a balloon in the air.*

The occupant of a space-flyer, having no weight, moved around with astonishing ease. He almost floated around in the machine. There was no physical labor. The biggest table was no heavier than a match. The passenger in a flyer could perform an incredible amount of work without tiring and without effort.

He could walk up the walls or walk "upside down" on the ceiling without danger of falling, as there is no "up" or "down" in outer space.

Sleep was practically impossible. There being nothing to tire the occupant, *sleep is unnecessary.* Dozing off is all he can do, and that could never last long, except after strenuous mental work.

As long as a space-flyer was not too far distant from the sun (within the orbit of Mars, at least), little artificial heat was needed. The sun heated one-half of the flyer's shell to a fierce heat, but the side turned away from the sun was exposed to the terrible stellar cold (absolute zero) and a fairly comfortable temperature was the result.

The air supply was manufactured by chemical means on board, but very little was needed, as the original supply taken from the earth is used over and over by absorbing the carbonic acid and organic emanations by means of automatic apparatus.

It was, of course, of the utmost importance that no porthole or doors leading to the outside be opened. The air would have rushed from the flyer instantly, resulting in a perfect vacuum inside of the flyer, and instant death to all living organisms.

AS the flyer moved away from a celestial body, the less mechanical energy was needed to propel it. There were exceptions, of course. Thus between every two celestial bodies a point will be found where the attraction that they exert on a body is zero. If the flyer were brought to this point, its gyroscopes could be at rest, as the machine would not be attracted by either body. It would "hang" between the two just as an iron ball hangs between two powerful magnets if carefully balanced. Give it the slightest push, however, and the ball will fly to either of the magnets.

The same was true of a space-flyer, between two bodies at the "zero point." If it moved over that point it was immediately attracted by one of the bodies, and if its gyroscopes refused to work, the flyer would have been dashed to pieces against the attracting body.

If, however, the machine came to rest at the "zero point" it would begin to turn around on its own axis, while at the same time moving in an elliptical orbit around the sun—*the space-flyer would become a tiny planet,* and as such would be subject to the universal laws of the planetary system.

It was not hard to steer the space-flyer; the nearer it came to a celestial body, the faster the gyrscopes worked; the further it drew away, the slower their movement became.

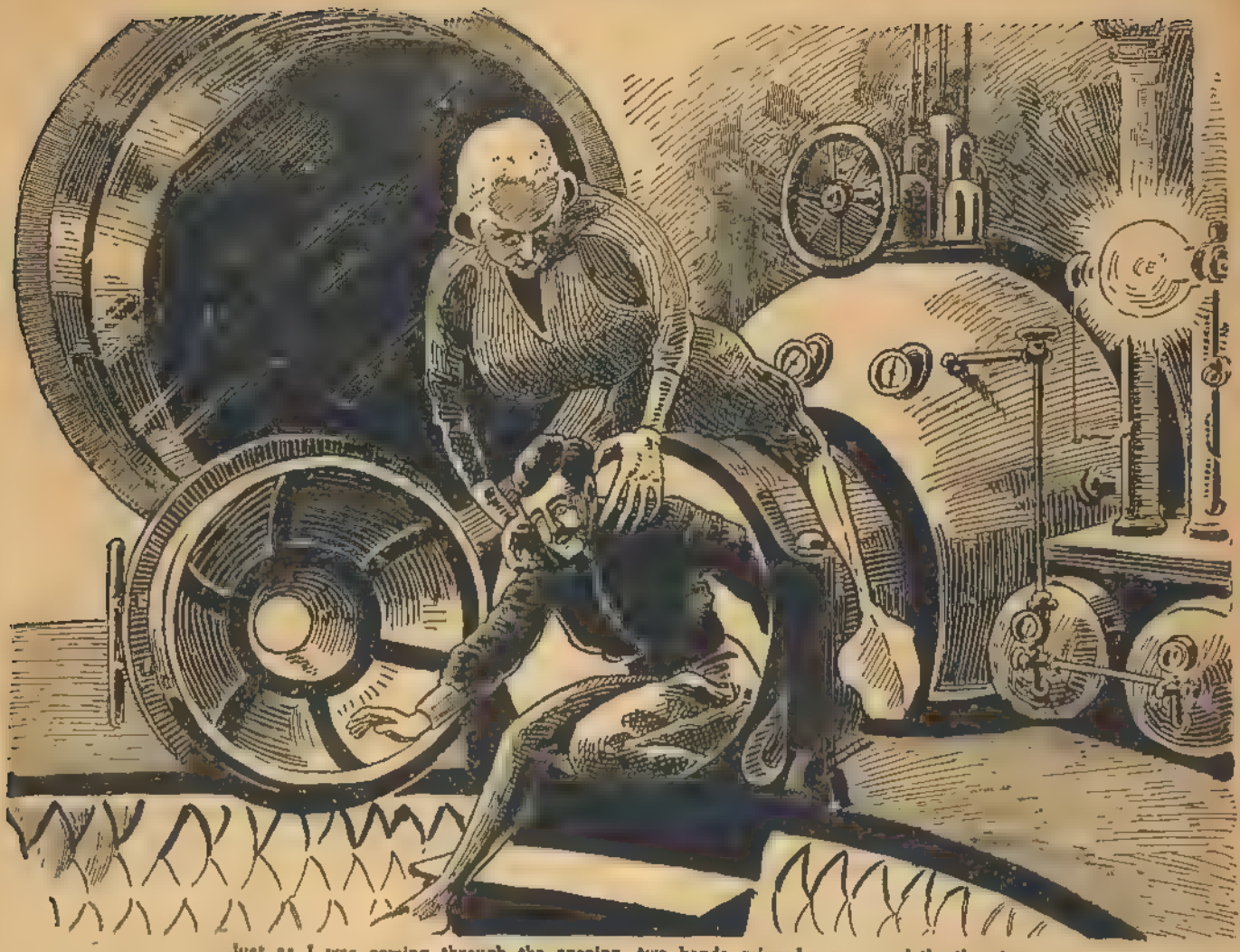
After Ralph had thoroughly inspected the entire flyer, he devoted his full attention to the course of Fernand's machine. At the rate at which he was flying, he computed that he would overtake Fernand in ten hours, provided the latter did not increase his speed meanwhile.

Fernand, when Ralph left Earth, enjoyed a handicap of 400,000 miles. He was moving at the rate of 45,000 miles an hour. Ralph's machine had made 80,000 an hour since its start. If everything went well he would overtake the other in ten or eleven hours.

As there was nothing else to do, he busied himself in

* In the outer space the "sky" is dead black; the blue color of the sky as seen from the earth is due to the atmosphere. The real sky is colorless.

* If a shaft were sunk to the center of the earth, an object placed there would stay suspended in space.



Just as I was coming through the opening, two hands gripped me around the throat.

the laboratory near the conning tower at the top of the flyer in an attempt to make the hours pass more rapidly. With all its speed, his machine seemed to crawl. He was in an agony of impatience.

At the end of the ninth hour he finally sighted Fernand's machine through his telescope. He then tried to signal Fernand by wireless, but the other either did not hear or else did not want to answer.

Eleven hours after his departure from earth, his machine drew to within a few hundred meters of Fernand's. After careful maneuvering, he brought the machine parallel to the other, and looking through one of the heavy plate windows saw the strained, drawn and ghastly white face of Fernand staring at him.

Ralph moved a few levers and then closed a switch. A hissing sound was heard, and Fernand was seen to fall backwards, the window turning green at the same moment.

Ralph had struck him senseless with his *radio-perforer*.

In a few minutes he anchored his flyer to the other by means of a powerful electro-magnet. He then pushed the connecting tube of his flyer into the tube-joint of Fernand's machine. With great care he made the joint air-tight. Taking a coil of rope, he opened the port-hole and crawled through the tube leading into the other flyer.

Arrived at the other end, he made sure that the joint at Fernand's machine was tight before he moved on.

Fernand lay unconscious on the floor and in a twinkling Ralph had bound him with the rope.

In high excitement he bounded upstairs to gain the room Alice should be occupying. His heart throbbed tempestuously. In another moment he would hold his sweetheart in his arms.

Arriving on the next floor, he stood still for a moment and listened. There was no sound except the gentle purring of the gyroscopic machinery.

He went from one room to another to the last one. The door was open. He entered with a strange feeling of dread. The room was empty. Apparently it had never been used.

In terror Ralph ran from one end of the flyer to the other. He looked in every corner, in every closet. He could find neither Alice nor her maid. Where were they hidden? To make sure, he went all over the ground again more thoroughly.

After the most careful scrutiny of every inch of the machine he fell limply into a chair, and buried his face in his hands.

Alice was not on board the flyer!!

CHAPTER XII.

Llysanorh' Strikes

FOR some minutes, Ralph stood motionless, completely bewildered. To have spent so much time and effort to no avail, hours—days wasted in a fruitless search! The thought was maddening.

Obviously, she was not on board Fernand's space-flyer. Where, then, was she? Certainly Fernand himself had had no opportunity to hide her, unless his whole flight into space was only a trick to deceive the searchers, and that was more than unlikely. Fernand was cunning—was this some new piece of duplicity?

Turning from the empty room, he ran down to where

Fernand lay, still unconscious. Kneeling by his side, Ralph applied a small electrical device to the back of the insensible man, with the result that in few minutes Fernand opened his eyes and stared dazedly into those of his captor.

"Where is she?" asked Ralph hoarsely. "What have you done with her? Answer me, or by God, I'll blow you into Eternity!" and, aiming his radioperforer at Fernand's head, he spoke with such ferocity that the other shrank involuntarily.

"I don't know," he muttered, weakly. "It's God's truth, I don't know. The Martian got her. He took her away and left me drugged." His voice trailed off and he seemed about to collapse.

"You're a liar!" growled Ralph, but his tone lacked the conviction of the words. There was that in the other's voice that rang true. Mechanically, he cut the cords that bound Fernand, and the man rolled over helplessly. He was weak and dazed, and altogether too broken in spirit to make any further trouble. His nerve was gone.

Ralph propped him up against the wall, but he fell over on his side limply. Impatient at the delay, Ralph went in search of water, and finding a pitcher of it in Fernand's laboratory, unceremoniously dumped the contents over the prone man's head. This had the desired effect of restoring him somewhat, and in a short time he was able to tell the following story in detail.

"When I applied the chloroformal to you that night, I used the same drug on Alice, while Paul 9B 1261, a friend of mine, took care of your driver. We dragged Alice into our cab, and made for the outskirts of New York where I had the space-flyer in readiness. A maid, Lylette, was already on board. We got Alice on and I put her in the care of Lylette, and in a few seconds we were off.

"When we got well out in space I locked the steering disk and helped the maid to revive Alice. In a few minutes she was herself again, which she fully demonstrated by slapping my face and then trying to tear me apart like a wildcat, when she found where she was." He gave a wry smile at the recollection.

"Go on!" snapped Ralph.

IT was an hour later, and we were burning up space, traveling at a rate of 70,000 miles an hour, when the radio signalling apparatus began ringing furiously. I tuned in, and heard a faint, gasping voice from somewhere out in the great void. With difficulty I learned that there was another space-flyer somewhere near me, with two men and four women on board, and that their oxygen supply was being rapidly exhausted, due to the spoiling of some of the oxygen-producing chemicals. They asked for a small supply of oxygen, enough to get them back to Earth. Otherwise they would be doomed.

"Knowing myself to be safe from pursuit for some hours, even after you learned I abducted Alice, I decided to aid the crippled flyer, and answered that I would assist them as soon as possible. I went up to the conning-tower and, with the telescope, located the other machine. Then I reversed the anti-gravitator machinery and within a short time I had drawn up level with the flyer.

"We made fast, and ran the connecting tube between the two machines. When the joints were made airtight I crawled through, and just as my head came through the opening into the other, two hands gripped me around the throat and I was jerked into the machine. I made a desperate effort to wrench myself free but I was absolutely helpless in such hands. I found myself gripped by Llysanorh', the Martian, and I might as well have fought a tiger as that seven-footer.

"He said nothing; only stared at me with his enormous eyes, while he dragged me to a small compartment, manacled my hands, and left me, locking the door behind him. But he was back in fifteen minutes or so, with a triumphant look in his eyes. He picked me up and pushed me through the connecting tube into my own flyer. He dragged me into my machine-room, and forced me to watch while he, using a big hammer, smashed the mechanism of my six anti-gravitators, so that I would not be able to steer, and could fly in only one direction. He ruined all the spare parts, to make sure that I could not make any repairs or replacements.

"Then catching me by the back of the neck, he said:

"'I intercepted your letter to Paul 9B 1261, and followed you. You didn't count on *me*, Fernand, when you stole Alice. Neither you nor that fool scientist Ralph 124C 41+ shall have her. *No* man shall have her but myself. I will kill her first. I don't know why I don't kill you, except that you are scarcely worth the trouble. You can't pursue me with your machine in this condition, and when—*if ever*—you are found, it will be too late.'

"'Good God, man,' I said, 'surely you won't take a helpless terrestrial girl!'

"'It is only what you did,' he replied, 'and at least, I love her!' And with that he pressed a cloth saturated with some drug unknown to me against my face, and that is all I remember.

"I must have been unconscious at least six or seven hours and when I came to, it was another hour before I shook off the effects sufficiently to recollect anything. Llysanorh' had taken off the manacles, but I was as helpless as if I had been bound. I must have dozed off, for I had only just awakened when I looked out and saw your flyer approaching. And that's the whole story."

RALPH had listened to the amazing narrative with growing apprehension. He knew enough of the Martian character to realize that Alice was in the hands of a man who, once the die was cast, would stop at nothing. He had been hopelessly, pitifully in love with Alice. It was easy to see that, having, probably quite by accident, intercepted Fernand's letter to Paul telling of his plans, he had in a moment of desperation, born of despair, determined to carry her off himself. Perhaps, in the first place, he had only intended to save her from Fernand, and then, considering the small possibility of discovery and pursuit, had succumbed to his overwhelming passion for her, and abducted her instead of returning with her to Earth. But whither was he bound? Surely, not to Venus where the inhabitants were nearly all Terrestrials, and where laws were identical with those of Earth.

Mars? Possible, but improbable, although Llysanorh' might have some friend in his sect who would perform the Martian marriage ceremony secretly. But even if this were the case, where could he take his captive bride? They would not be permitted to live on Mars; nor would Earth or Venus accept them.

The intolerably hot planet Mercury was out of the question, and the two moons belonging to Mars had no atmosphere.

There remained only the Asteroids.

At this thought Ralph sprang to his feet with an exclamation.

"I've been a fool not to think of them before," he cried. "Of course he would get her to one of them, and once there she will be lost forever. Good God, I must find his machine and head him off before it's too late."

He turned savagely on Fernand still crouched against

the wall. "I'm tempted to leave you to the fate the Martian intended for you. God knows it wouldn't be half what you deserve."

"Don't do that, in Heaven's name," mumbled the other. "Don't leave me here like this."

The scientist looked at him contemptuously for a moment.

"Bah!" he said scornfully, "can't you even take your medicine like a man? But I'll turn your machine around and direct it Earthward. You will intercept the Earth in about thirty hours. You can't steer, but you can accelerate or retard the speed of your flyer, and need not collide with the Earth if you are careful.

"And remember this," he added grimly, "if you and I ever meet again, I will pound your miserable cowardly body into jelly!"

He turned his back on the abject man, and returned to his own flyer. Then he turned Fernand's machine around, disconnected the two from each other, and in a few seconds Fernand's flyer disappeared.

Ralph sprang into action. He immediately began taking observations. These told him that it would take him at least thirty days to reach Mars, even though he forced his machine to the utmost. He could not travel over 90,000 miles an hour, but, on the other hand, he felt sure that Llysanorh's machine was incapable of making more than 85,000 miles an hour. But the Martian had a handicap of probably 600,000 miles, and if Ralph gained on him at the rate of only 5,000 miles an hour, it would take 120 hours, or five terrestrial days to overtake him.

Ralph turned his machine towards the point in space where Mars would be at the end of thirty days, and now set himself to the task of making a search for the other flyer with the polarized wave apparatus.

FOR four wearisome and anxious hours he sought through space perseveringly, and was at last rewarded by locating another machine which he was certain was that of the Martian, as he had reasoned, heading for Mars.

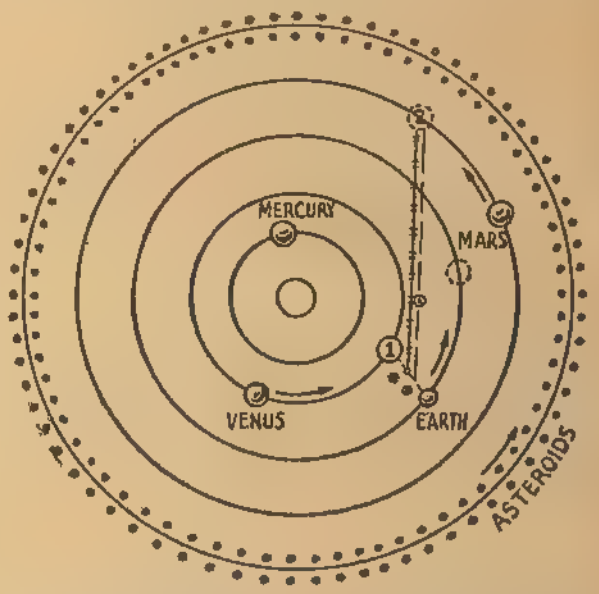
At the same time the results of his calculations dismayed him greatly, for they revealed that Llysanorh's machine was making no less than 88,000 miles an hour. At this rate, Ralph was gaining only 2,000 miles an hour, and it would take thirteen or fourteen days to overhaul the other flyer. But as the Martian could not hope to reach Mars under twenty-nine days himself, Ralph figured that he, barring some unforeseen accident, would overtake him long before he landed there.

It was absolutely imperative that he do so, for once the Martian left Mars and headed for the Asteroids, further pursuit would be useless. There were over 4,000 of these little planets already known* and it would be the work of a lifetime to search on each one for the fugitive and his victim. Speedy action on Ralph's part was urgent.

These little Asteroids, revolving in an orbit between Mars and Jupiter were practically uninhabited, although most of the larger ones had a good atmosphere, and a fair climate, considering their distance from the sun.

Some of them were only a few miles in diameter, and the largest measured but 485 miles. An electromobile, running at the slow rate of 60 miles an hour could circle such a tiny planet in 24 hours!

The larger planetoids had a superb vegetation, and as the gravity on these bodies was only a fraction of that on the Earth, the trees and shrubs were gigantic, while colossal fruits and vegetables grew in abundance. These plants helped to create a dense atmosphere, in spite of the small gravity, and life, on one of these little planets, was far more comfortable and pleasant, in many respects, than on Earth or Mars.



—ORIGINAL DIRECTION OF RALPH. ----COURSE OF LLYSANORH'.
• WHERE RALPH OVERTOOK FERNAND. ⊙ POSITION OF LLYSANORH WHEN RALPH OVERTOOK FERNAND.
---NEW COURSE OF RALPH IN PURSUIT OF LLYSANORH'. ① WHERE VENUS WOULD HAVE BEEN MET IF FERNAND HAD CONTINUED HIS JOURNEY.
② WHERE MARS WOULD BE AT END OF LLYSANORH'S JOURNEY.
⊗ WHERE LLYSANORH' ABDUCTED ALICE.

Now began the hardest part of the chase for Ralph. There was nothing more to do than he had already done. From now on he must wait with what patience he could summon to his aid, until such time as his machine should catch up with that of the Martian. He could force his own no further, and he was very sure that Llysanorh' was also flying at his utmost speed.

At work, he had not had much time for thought. Now, with time hanging heavily on his hands, his conjectures as to the fate of his sweetheart drove him, at times, nearly to madness.

CHAPTER XIII.

Alice Objects

ALICE, on being aroused to consciousness by the ministrations of Lylette, the maid, and Fernand, and finding herself a prisoner on board a space-flyer at the mercy of Fernand, was overwhelmed with fury. This cool abduction provoked her to such a passionate outburst, that Fernand had actually retreated before it.

"You coward," she blazed, "how dare you keep me here! Turn around and take me back at once—at once, do you hear?"

Fernand, in the act of opening her door and going back to his laboratory, paused smilingly.

"My dear girl," he said mockingly, "ask of me anything else and I will grant it—but not that. You have a temper that delights me. Your smiles will be all the sweeter, later."

Her answer was to fly at him with such passion, that he involuntarily took a step backwards. In a flash she had run by him, was down the stairs and tugging at the fastening of the door that led outward. Fernand bounded after her calling to Lylette as he ran, and in a moment they were both struggling with the girl, who had indeed become a veritable wildcat. She had

* Up to 1911 over 650 Asteroids had been discovered.

both hands fastened around the great bar that held the door and fought madly to unfasten it. Had the door been opened the fraction of an inch, all three would instantly have been blown to pieces. Fernand wrenched at her hands in real fear that she might succeed in her purpose.

She was a strong, athletic girl, and at the moment her desperation gave her added strength. But the combined strength, and by no means gentle handling of Fernand and Lylette, who herself was a large and powerfully built woman, forced Alice to relinquish her hold, and she was dragged, struggling, back to her room, and left there, with the door double-locked.

Alone, she passed from the high exaltation of anger to a state of nervous apprehension. Another woman in her place might have wept, have begged piteously for mercy, but this girl was made of sterner stuff. She might be frightened but Fernand should never guess it.

Dry-eyed, with lips set in a firm line, lest they tremble and betray her, she sat facing the door, gripping in her small hands the only weapon she had been able to find—a small metal vase, having a round, and fairly thick base.

Even knowing that Fernand would come back, and prepared as she was for his return, she was unable to repress a start of genuine terror when she heard someone unbolting the door. She clutched the vase more tightly, white-faced, but courageous.

Fernand entered alone, carefully closing the door behind him. He wore his customary, rather bland smile, and his voice was suave to the point of oiliness.

"All over our little fit of temper?" he asked.

Alice stared at him, disdainfully, silent. Then her eyes fell upon something in his hand—manacles of glistening steelonium!

The horror she felt was depicted in her face, for he said, holding them out for her to see, "A pair of bracelets for you, sweetheart. Just as a precautionary measure. You are rather too quick with those hands of yours. But I am not unkind, my dear. You need not wear them if you will only give me your word not to repeat your recent performance."

Beyond the door she saw Lylette standing in readiness, and she knew that physical resistance would be ineffectual. Far better to give her promise and be free than be bound and helpless. Besides, there was the laboratory. In it there were many roads to freedom—there were poisons that killed instantly and painlessly. Unmanacled, she might reach them eventually. Bound, even that way would be closed.

Coldly, clearly, she gave her promise, but inwardly she offered up a prayer of thankfulness when he turned and handed the handcuffs to Lylette.

"You can lay down your weapon, Alice," he said, still with his mocking smile. "I can assure you that you have no need of it. You will find me a gentle lover, and one who is willing to wait for his lady's favors." He stopped suddenly, and turning his head in the direction of the stairs, listened intently.

FROM the laboratory, came the insistent ringing of the radio calling apparatus.

With a muttered order to Lylette, he was gone.

What was happening, Alice did not know. She could not read radio messages, but she knew that only something of grave import could have made Fernand rush like that to the radio. She strained her ears, but heard nothing.

Her hopes rose with a great bound with the thought that perhaps Ralph was on his way to her. Perhaps it was he signalling. She had been sure that he would follow her as soon as possible, and now her dark eyes brightened with hope.

At this moment Lylette, without a glance in her direction, closed the door, and Alice was once more alone and a prisoner behind bolted doors.

It was then that she gave way to her loneliness and despair. She knew that if it had been Ralph signalling, Fernand would at once, having received the news that the scientist was in pursuit, set about making plans to elude him. She knew that Fernand was desperate, that his life, under the law, was forfeit for this crime he had committed. He would stop at nothing. Instinctively, she felt that he would destroy her and himself, rather than be taken. Certainly, he would not hesitate to murder Ralph if the opportunity presented itself.

She flung herself upon the couch, and burst into tears of agony, and terror. Suddenly she sprang to her feet, still sobbing, wide-eyed with dread of what she knew not.

The space-flyer had stopped. The throb of the machinery had stilled and the flyer was hanging motionless in space.

Standing in the middle of the room, rigid with suspense, Alice waited with beating heart. Suddenly she heard the sound of rapid steps on the stairs. Now they halted at the door, and someone fumbled at the bolts and locks.

The next instant the door was flung wide open, and Llysanorh' the Martian stood upon the threshold!

CHAPTER XIV.

The Terror of the Comet

DURING the next few days Ralph followed a course midway between Earth and Venus. This was the spectacle that at times greatly increased the transport space-flyer travel between earth and Mars, many of the inhabitants of both planets making the long journey simply to get a view of the beautiful planet Venus.

Ralph ran almost parallel for a time with the two planets (see diagram), Venus to his left, earth to his right. He was quite near the former, but he could hardly see it, as the bright rays of the sun precluded detailed observation. A few days later, however, it had swung far enough to the left to afford him occasional glimpses of its beauties.

Ralph worked almost continuously in his laboratory in the conning tower. In the course of the week since he had left earth, he had only cat-napped for about two hours, since sleep was impossible.

He constructed several new pieces of apparatus, which he considered might be useful in case of a possible encounter with Llysanorh'. He knew that Llysanorh' could not be as easily subdued or caught as Fernand. This tall Martian was an inventor himself and knew much about handling modern death-dealing weapons. It would be useless to try the radioperforer as he probably would carry a silonium armor, proof against all radium emanations.

One of the first things he had done was to lead wires from the steering apparatus up to the conning tower. On the floor of the tower he arranged contacts in such a manner that he could press them together with his feet. The control was similar to the foot pedals of an organ. He then practised for some days until he could steer the flyer wholly with his feet. Thus his hands were free to control any apparatus he would need for attack or defence. With his feet he could so control the machine as to avoid projectiles if necessary.

As the days rolled by, however, Ralph became more and more disturbed. He now took observations hourly, his eyes glued to the indicator. With a sinking heart he saw that he was not gaining on the Martian. The latter had his machine well tuned up and was covering almost 90,000 miles an hour. At this rate Ralph could never catch up with Llysanorh'. It was maddening. The days became a long, drawn-out agony. Ralph had done everything in his power to accelerate the speed of his flyer and to strain the machinery further meant inviting certain death. Within eight days Llysanorh' would land on Mars,—his course now plainly showed that he was headed for the planet. At best Ralph would be ten hours behind—time enough for the Martian to accomplish his purpose. And he, Ralph 124C 41+, the greatest inventor the world had ever produced, was powerless.

Again he took observations, and again the results were the same. A weariness of the spirit swept over him. The dark waters of despair seemed to inundate his very soul. To have been physically exhausted would have been a relief. To know the blessedness of but an hour's sound sleep, to be free from this terrible tension—

He sank down upon a seat and buried his head in his hands, and as he sat, striving to quiet his worn and troubled mind, there came to him an idea—nay, more than an idea, an inspiration, by which he would overcome the formidable difficulties that beset him.

An idea, so simple that, having once formulated it, it seemed ridiculous not to have thought of it before, came clearly to his mind.

His soul-weariness fell from him like a discarded garment. He sprang to his feet, once more the scientist, the man of action, triumphant, dominant.

His marvelous ingenuity saw the way out. His mind would again triumph over time and space. He would achieve the impossible, surmount the insurmountable.

THE battle was not lost—it had but begun!

He knew he could not overhaul Llysanorh'. Neither could he intercept him. A wireless decoy message was futile. Llysanorh' would never be caught by such a flimsy trick. But he must do something to prevent Llysanorh' from reaching Mars.

How could it be accomplished? By sending a message to the Martian authorities? A futile thought. Even if the distance could be bridged, which was doubtful, Llysanorh' would, in all likelihood, intercept the message with his recorder. He would simply send a message to his friend to board a space-flyer and to rush to him at top speed. The marriage ceremony could then be performed out in space.

No, Llysanorh' must not know that he was pursued; but he must be prevented from landing.

Ralph would literally move the heavens. He would threaten Mars with a comet! Llysanorh's patriotism could be depended upon to make an effort to divert the comet from its course, to avoid the imminent collision with Mars. This, Llysanorh' could do without danger to himself, simply by steering his flyer close to the head of the comet—within a few hundred kilometers. The gravitational action of his machine on the comet would deflect the course of the latter enough—even a few degrees would be sufficient to change the path of the meteor.

But where was the comet to come from? To Ralph this was simplicity itself. He did not need to "catch" a comet—he could manufacture one for himself,—a comet more unique than ever rushed through space.

He knew that comets had been reproduced artificially on a small scale, centuries ago*; however, no one had ever tried to make a real comet. He also knew that the largest comets have a very small mass, and that the tail is composed mainly of gas and dust, which is so thin that the stars may be readily observed through the tail of almost any comet.†

Ralph thus became the first human being to *create* a heavenly body. As comets are composed mainly of hydrogen gas and dust, the creating of Ralph's artificial comet was absurdly simple to the scientist.

By means of scraps of zinc and iron filings, over which sulphuric acid was poured, Ralph produced a great quantity of hydrogen. This he filled in tanks and when he had generated enough, he connected the tanks with a large metal stop cock in the wall of the space-flyer. As soon as the stop cock was opened the hydrogen rushed out into the open with a roar.

Immediately Ralph connected his high frequency apparatus with the outside aerials of the space-flyer and the phenomenon took place.

The hydrogen particles which heretofore had been invisible, began to glow with a wonderful light, enveloping the entire flyer. For thousands of miles behind the machine stretched a true comet's tail, the flyer forming its head or nucleus. The tail, as in all comets, was turned away from the sun, and although Ralph could not see the end of the tail, he knew that what he had created could be seen for hundreds of thousands of miles, like any natural comet.

But Ralph was not fully satisfied, and he therefore started to "improve" the comet. He manufactured several other gases in large quantities, which he ejected into space, greatly enhancing the brilliancy and size of the comet's head as well as of its tail.

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*In 1876 Reitlinger & Urbanitzky before the Vienna Academy of Sciences published a report on their experiments on artificial comets. A tube containing a hydrocarbon has been pumped out till the pressure has fallen to 0.1 millimeter. If connected to an induction coil, a blue sphere will be formed at the positive electrode after a short time, which "hangs" suspended freely. Connected to the sphere is a tail, Fig. 1. One is struck immediately with the close resemblance of this artificial comet and Henry's Comet of 1873, Fig. 2. If a conductor (a brass ball) as seen in Fig. 1 is brought near the tube, the tail flees from the conductor as far as the tube allows. This again proves that the artificial as well as the real comets are subject to the same natural laws. As is known, the tails of all comets are repulsed strongly by the sun, which latter is also a conductor.

Fig. 1

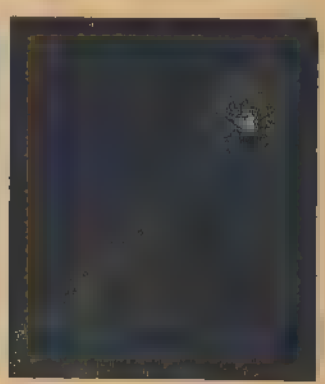


Fig. 2

†According to Bredikhine, the long straight tails, as seen in the comet of 1861, are composed of hydrogen; the long curved tails, like the principal tail of Donati's Comet, consists largely of hydrocarbon vapors; while the somnolent, rare, short tails of violent curvature are made up of mixed iron, sodium and other metallic vapors. This classification has received support from spectroscopic evidence. In 1882, Fitzgerald first propounded the theory that the tail was due to the pressure of light upon the gaseous matter composing it. In 1900 Arrhenius revived the theory, but modified it to the extent of supposing the tail to consist, not of gaseous matter, but of fine particles produced by condensation from the emanations of the comet.—New International Encyclopædia.

The nearer he drew to earth, the more his dread of the coming ordeal increased. He was by no means sure that he could bring Alice back to life; it was not even probable... He examined her every few hours, and once in twenty-four, he looked at her blood vessels.

The head, however, he thought was not "solid" enough as yet, and so he set about correcting this defect.

COMETS are composed chiefly of gases, but contain a large amount of dust. The dust particles act very much like the dust particles upon which a sun ray falls, and such particles have a comet-like appearance. If the atmosphere is eliminated and the same dust placed in outer space, a small comet will result. The small particles will be highly electrified by the sun and begin to glow. Each particle repels the other and thus even a handful of light dust will form a respectable comet in space.

Ralph made his dust by grinding paper and wood and other materials on a fine carborundum wheel.

After he had made a few pails full, he blew the dust out into space, and if his comet had been a magnificent sight before, it was really awe-inspiring to look upon now from a great distance.

The heavier particles clung close to the flyer, on account of gravitational action, but completely enveloped it. The machine was now a true planet, while the fine dust particles had become little satellites, revolving around their central body, the flyer.

The lighter dust particles found their way into the tail, as the powerful pressure of the sun's light overcame the attraction which the flyer brought upon them.

Ralph turned off the high frequency current and yet the comet was not extinguished and its brilliance was not in the least dimmed. The gas and dust particles had no way to dissipate their initial electrical charge, being in an absolute vacuum; and Ralph's artificial comet had become a real one.

Inasmuch as the dust was quite dense immediately around the flyer, Ralph's outlook was not as clear as it had been before. He could just see the stars, which seemed enveloped in a haze. This, however, pleased him greatly, as he knew that his artificial comet must look like a natural one from a great distance.

In this he had not been mistaken. As he afterwards learned, his comet had been "discovered" simultaneously on Earth, on Venus, and on Mars the same day he had made it. It had been charted and named, and on account of its great brilliance and long tail, had been immediately termed "The Great Comet of 2660."

That Llysanorh' would see the comet, Ralph never doubted for a second. He headed his comet-space-flyer exactly toward the point where it would collide with Mars at the end of six days. He figured that the Martians would be on the lookout, and inasmuch as Ralph's careful search did not reveal another space-flyer anywhere near him, he knew that the Martian officials would surely locate and attempt to communicate with Llysanorh'.

In this he was not mistaken. His chronometer pointed to 5 P. M. when he first recorded weak signals coming from Mars. Several messages were exchanged between the Martians and Llysanorh'. Llysanorh' gave his number and position in the heavens and he in turn received instructions to approach as near to the "comet's" head as feasible in order to change its course. He was also instructed to bombard the comet's nucleus with time-set torpedoes, if he could not deviate the comet from its course. Llysanorh' answered that he would follow instructions as far as his equipment allowed.

During the next few days Ralph was relieved to note that the distance between him and Llysanorh' diminished with great rapidity. His trick had worked. Llysanorh' was rushing at top speed towards Ralph's flyer, firmly believing it to be a comet.

Confident of victory, Ralph was jubilant. Hope, so long deferred, flooded his spirit. He whistled cheerily at his work.

Was not every minute bringing him closer to his sweetheart, his Alice? Was not every second drawing nearer to that moment when he would hold her in his arms again?

What wonder that he whistled all day long, and laughed to himself from sheer joy and relief?

At last the Martian came into range. Llysanorh' approached the "comet" up to about 150 kilometers and then receded. He then took observations, but somehow or other the "comet" instead of being deflected, commenced to pursue him. This was opposed to all astronomical knowledge and reasoning, and Llysanorh', fearing collision with the "comet" began to fire explosive torpedoes into its nucleus. As the distance between it and his machine was only 100 kilometers, he could watch the torpedo in its flight. Through his telescope he could see the torpedo rushing towards the "comet's" head.

But the "comet" dodged, and the torpedo shot far above the nucleus! It was uncanny. His aim had been accurate, he could have sworn. The distance was short. Yet he had missed. The "comet" had moved out of the projectile's path.

He fired again, with equal accuracy. The torpedo would surely strike now. But the "comet" this time "side-stepped," as it were, and the torpedo sped on through space, missing its target by a wide margin.

Llysanorh' was bewildered. Fear gripped him.

Gravitational action had not made the "comet" act in this strange manner. He fired one torpedo after another, but the "comet" dodged them all.

He suddenly stopped firing torpedoes. He next tried to destroy the infernal "comet" by electricity.

Soon his aerials were white hot with the energy he threw into them. He turned his flyer into such a position as to direct the outflowing energy towards the "comet's" head. The only result was to increase the luminosity of the "comet."

Suddenly Llysanorh' realized that the "comet" was only fifty kilometers away. He noticed with horror that the head of the "comet" now seemed to fill up almost one-quarter of the "sky." Another discovery that came simultaneously was that instead of the "comet's" head being solid, there was a mysterious small black speck in the center of the nucleus. This was against all knowledge and theory of comets.

WHEN Ralph had brought his "comet" within fifty kilometers of Llysanorh', he felt that the time had come to throw off the mask. He had lured Llysanorh' to within striking distance. It was now time to strike.

He had one great advantage over Llysanorh'. The latter was wholly unprepared, believing he had to deal with a comet. This facilitated Ralph's movements.

He carefully insulated himself by sitting on a tall glass tripod. He then attached to his ears the telephone receivers that were connected with the induction balance,* which he had attached to one of the glass portholes.

He then started to turn the glass wheel of the ultra-generator, connected to the outside aerials.

A terrible screaming sound came from the generator and the whole flyer shook. Ralph continued to turn the wheel quickly. The generator shrilled higher and higher, until the frequency had become so high that no

* The induction balance is an instrument which, connected with a telephone, causes the latter to emit a singing sound, when a piece of metal is brought near the balance. It is incredibly sensitive and has been used to locate buried metal, etc. Invented in 1880 by Professor Hughes.

sound could be heard. The vibrations had passed 35,000.

Ralph turned the wheel a few more notches and everything became pitch-black over a space sixty kilometers in diameter.

As happened in his Switzerland exploit two months before, Ralph's aerial on the space-flyer, due to the powerful action of his ultra-generator, attracted the ether so fast that it could not be replenished quickly enough. It acted much like an immense vacuum pump on the atmosphere.

Darkness spread over a large area as the inky fluid of the octopus blackens the sea. Both flyers became invisible to each other.

Ralph, however, pointed his machine on its former course and speeded it up.

Llysanorh', dismayed by the unexpected darkness, had brought his machine to a dead stop. He was almost frantic with terror and stood like one paralyzed, unable to think or to act.

Within a few minutes Ralph's induction balance caused his telephones to emit higher and higher notes, indicating, despite the pitch-black darkness, just how near he was to the other flyer.

When he was certain that he had approached Llysanorh's machine, he suddenly shut off his ultra-generator. Quick as lightning he had grasped his radioperforer, and although the light which returned instantly blinded him for a few seconds, he had glimpsed Llysanorh's terrified face, just a few meters distant, his forehead pressed tight against the glass plate of the port-hole.

Ralph took quick aim and pressed the trigger.

There was a silent flash and Llysanorh' seemed to topple over. Simultaneously the glass of the port-hole turned green.

In a flash Ralph jumped up and peered anxiously out of one port-hole, then another, hoping to catch sight of Alice.

There was nobody to be seen.

He rushed to the wireless and signalled frantically for several minutes. Breathlessly he clasped the receivers to his ears.

There was no answer—no sound—nothing.

With sinking heart, he rushed to the connecting tube. In his excitement it took him twenty minutes to make the connection between the two machines and the tube air-tight. Before crawling into the connecting tube, he grabbed up his radioperforer as a precaution.

The sight that presented itself to him as he crawled into Llysanorh's machine drew an involuntary agonized cry from him.

Llysanorh's dead body lay across that of Alice, his sharp dagger sunk into the upper part of her arm. Ralph hurriedly moved the rigid body aside.

There lay Alice in a terrible pool of her own blood, her eyes closed—dead.

CHAPTER XV.

Llysanorh' Throws Off the Mask

WHEN Alice saw that it was Llysanorh' standing on the threshold of her room, she experienced at once great disappointment and overwhelming relief.

The second space-flyer was not driven by Ralph, but she was at least safe from Fernand.

"Oh," she cried with a sob of relief, "I am so glad it is you, Llysanorh'! I have been so frightened."

He made no answer, but regarded her with enormous eyes in which burned a sombre flame.

"You *are* going to take me off this horrible flyer, aren't you, Llysanorh'? You won't leave me here alone with that—that beast, will you?"

He shook his head soberly, and extended one hand to her.

"Come," he said briefly.

She put her own hand confidently in his, and he led her down the stairs, and past the laboratory. She shrank back as she saw Fernand's bound and motionless form.

"Is he—dead?" she whispered.

"No," said Llysanorh', leading her to the connecting tube. He helped her through with gentle hands, and in a moment she found herself in the other flyer. Taking her hand again in his, Llysanorh' led her to a luxuriously furnished room.

"Stay here until I come back," he said. "I won't be long."

He turned to go but she, catching his sleeve, detained him.

"Are you going to—to kill him?" she asked.

"Perhaps. I haven't decided yet," he replied, unsmiling. And then, gripping her shoulders with startlingly sudden emotion, "Has he harmed you?"

"No, no," she said, frightened, "he just tried to terrify me, that was all."

He released her, and strode to the door.

"I won't kill him," he said, and for the first time he smiled, but in that smile there was no mirth. "I shall let him live, that he may pray for the death I have denied him."

And he was gone.

And presently Alice heard him disconnecting the two machines, and a moment later she knew that Llysanorh's flyer was moving. A half hour passed and still she was left alone. Beyond the vibration of the machinery there was no sound to indicate that she was not absolutely alone in the flyer.

Feeling a little panicky, she finally left the room and made her way through a corridor. Several doors that she opened led into rooms even more luxurious and splendid than the one she had left. It exceeded anything she could have imagined.

So this was the space-flyer owned by the Martian about which there had been so much gossip. Stories she had heard before of its spaciousness and magnificence came back to her.

It was like the palace of the Beast in the ancient fairy story, where Beauty had wandered for hours through room after room filled with new marvels. Alice smiled whimsically at the thought. She was "Beauty," she reflected, and Llysanorh'—yes, he made a very good "Beast." Her buoyant spirits were rapidly recovering from the strain of her imprisonment.

Finally, she tried one more door, and entered a wonderful laboratory, fully equipped.

And at the farther end, seated before a low table, sat the Martian, his head resting on his folded arms. His whole attitude suggested hopeless desolation. He looked very lonely and remote, and somehow, to her, very pathetic.

SHE stood, hesitating, uncertain of whether to advance or retreat. Finally she spoke his name softly. At her voice he raised his head and stared at her. And she saw that his face was lined and furrowed by some terrible strain, but his eyes were steady with resolve.

"How serious you look," she said, coming into the middle of the room. "You seem so worried and anxious, Llysanorh'. Has something gone wrong with the flyer? And what did you do with Fernand and his machine?"

"I left him recovering from the effects of the drug,"

he said, in a forced and unnatural voice, which betrayed, even more than his expression, the disturbed state of his mind. "And nothing is wrong with the flyer. It is I—I who am wrong."

"Oh, surely it can't be as bad as you think," said the girl, her quick sympathies aroused by his obvious misery. "Would it make you feel any better to tell me? We have always been such good friends, Llysanorh', and I might be able to help you."

"Later, perhaps, later," he said, and then with an effort, "can you make yourself comfortable here for a few days, do you think? I brought the maid with me. You will find her waiting in your rooms for you. I don't think she will give you any trouble."

"Oh, yes, I surely can," she replied. "It is lovely here. I have heard so much about this flyer. Why haven't you shown it to father and me before? The rooms are like those of a fairy palace. Tell me, Llysanorh', will it be long before we get back to Earth? Everyone"—she had been about to say Ralph, but checked herself—"everyone will be so worried about me."

"We are never going back to Earth," he said.

"Never going—why, what has happened then? Is there something wrong that you won't tell me?—or are you joking? But of course, you're joking, Llysanorh', and for a minute I thought you were serious."

"I am serious," he said, rising to his feet and facing her. "We are never going back, you and I."

Alice looked at him, wide-eyed, amazed and bewildered.

"But I don't understand," she faltered. "Why, Llysanorh'?

It was then that the pent-up emotion of months burst the bonds of self-restraint that he had forced upon himself.

"Why!" he cried passionately, "you ask me why! Can't you see why? How can you look into my eyes and not know why? Because I am a man—because I am a fool—good God, because I love you!" He flung himself upon his knees, clasping her about the waist with his arms.

"I worship you, I adore you—I always shall. You must love me, you cannot help but love me, I love you so much, Alice, Alice, my dearest, my beloved."

He threw his head back and looked into her face imploringly, as if by the very force of his love she must respond, but he read there only terror and a growing abhorrence. It cooled him more effectually than any words she could have spoken, and he relinquished his hold on her, rose and went back to his former position at the table, while she watched him speechlessly.

For a time neither spoke. At last he said in quiet tones, strangely in contrast with his late passion, "You can't hate me, Alice. I love you too much."

"No," she said, gently, "I don't hate you, Llysanorh', but oh, can't you see how hopeless all this is? I love Ralph, and if you keep me here forever, I will still love him."

She got a glimpse, then, of the terrible struggle this man of Mars had had with his conscience.

"I know, I know," he groaned, "I have gone over that ground many times—many times, but I can not—will not—give you up. I tell you," he went on with a return of his former frenzied emotion, "that rather than let him have you I will kill you with my own hands. At least, when you are dead, I will be sure that no other man can possess you."

She was a courageous girl, but before the madness in his face, she fled, shuddering.

. . . . . .

DURING the next several days, Alice kept close to her rooms. She saw little of Llysanorh', who seemed to be avoiding her purposely, and the maid, Lylette, was uncommunicative. Alice was horribly lonely and afraid. At first she had confidently expected Ralph to rescue her at any moment, but as the days dragged on, and the space-flyer continued to draw nearer to Mars, with no sign of Ralph, she became increasingly apprehensive of her situation.

She knew that Llysanorh' controlled powerful interests on his native planet, and that once there, all her pleadings would be in vain.

Whenever she saw him, he was quiet in manner, showing a courteous deference to her. But he could not hide the triumphant light in his eyes, which he took less pains to disguise from her the nearer they came to Mars. And yet, she could not deny the fact that his love for her was genuine. Only one other time did he speak of it.

One day she was sitting in the beautifully appointed library reading, with Lylette near by, when he entered. He gazed at her a moment in silence. Then he said, "You know, Alice, just to have you here with me, where I can see you occasionally, is wonderful to me."

Her eyes filled with quick tears, for she was worn and unhappy. And seeing them, he quickly withdrew.

Later, he seemed very busy in the machine-room. Passing it, once, she saw him working frantically at something; what, she could not see. But a glimpse of his face revealed it haggard and drawn. It was but a few minutes after that, back in her own room, that a complete and terrifying blackness obliterated everything. She heard Lylette screaming somewhere in dreadful panic, and she heard Llysanorh' shout something hoarsely.

Stumbling, she made her way as fast as she could in the darkness back to the machine room. She heard him at one of the windows. Apparently he was trying to pierce the blackness, to ascertain its cause. She started toward him, when the light returned in a blinding flash, and she saw Llysanorh' stagger as if struck by something.

"Llysanorh'," she cried, "what is it? What is happening?"

He lurched toward her and caught her in his arms savagely. "I'll tell you what has happened," he shouted, "I see it all now. The comet—a trick, damn him! And now he's got me. But not you, Alice, not you. You are going with me—"

The Martian's face was distorted with passion. He had a gleaming dagger in his right hand poised over her. Then, just as it was about to strike, she saw his face go blank and felt a terrific blow on her arm. The next instant she was falling—she seemed to drop into a dreamless sleep.

CHAPTER XVI.

The Supreme Victory

WHEN Ralph burst into the machine-room of the Martian flyer and saw Alice lying dead in a pool of her own blood, the shock was almost more than he could bear. Falling on his knees beside her small, yet warm hand in his, he called her name again and again in agonized tones. He covered her lovely white face with kisses, while dry tearless sobs tore at his throat.

Then, thinking that perhaps he had made a mistake, that her heart *must* still beat, he tried, with trembling hands, to discover the extent of her injuries. Llysanorh' had aimed at her heart, but the dying man had missed his mark, and the sharp point of the dagger had

slashed her arm, cutting into the large artery. And in those precious moments when Ralph had been connecting the two flyers, and making his way from one to the other, her warm rich life's blood had ebbed rapidly away.

He lifted the lifeless body in his arms and carried it to his machine, where he laid it on his bed. His mind was confused and disordered and he was unable to think coherently. A sickening sensation of depression so overwhelmed him that he felt physically ill.

Suddenly an electric thrill seemed to pass through his body and his clouded mental vision cleared. A picture flashed upon his mind. He saw himself in his laboratory on Earth, bending over a dead dog. And there came to him a memory of that Dean of scientists:

"What you have done with a dog, you can do with a human being."

In that instant Ralph was galvanized. For the first time in his life he doubted. Could he do it? What if he failed? Then he pushed such thoughts from him with stern resolution.

He would not fail!

He touched the body of the girl. It had not yet grown cold with the icy chill of death. He rushed for some electric heating pads, which he applied to her to keep what warmth remained.

Then came that which proved itself a terrible ordeal for him. It was absolutely necessary to drain away all the remaining blood, so that it would not coagulate.

It had been a simple matter to empty the blood-vessels of a dog, but this was the girl he loved, and he shuddered as he began his work.

He opened the large artery, and it was only with supreme courage that he forced himself to complete the heartbreaking task, while scalding tears ran down his cheeks unheeded.

He had scarcely terminated his work, when he heard steps in the corridor. He could feel his hair bristling, and he whirled to face the door, reaching for his Radio-perforer as he did so. Could Llysanorh'? . . . The next moment a large woman stood in the doorway.

Ralph stared at her in amazement. Then suddenly it dawned upon him that this must be the maid Fernand had provided.

She had hidden herself in abject terror when the darkness came down, and had only just mustered enough courage to investigate. The first object she had seen upon creeping to the machine-room was the dead body of the Martian. Horrified, she had fainted away, but later, recovering, she crawled through the connecting tube.

She was weak, trembling with fright, and could be of no use, and Ralph hastened to get her into another room, where he put her into a comfortable chair and left her, for he could not afford to lose a minute now.

A most important task was now before him. He had to pump an antiseptic solution through the veins of Alice, and after that the blood vessels must be filled with a weak solution of Radium-K Bromide, which, taking the place of the blood, would prevent her body from undergoing physical and chemical changes.

WITH infinite care Ralph applied himself to his difficult task. After the blood vessels had been completely filled with the Radium preparation, he sewed up the arteries. In this gruesome task he was assisted by Lylette, who had recovered sufficiently to be of some help to him.

There remained only one more thing—to apply the Permagatol, the rare gas, having the property of conserving animal tissue, which Ralph had used successfully in his dog experiment, in keeping the respiratory organs from decomposing in the absence of blood in the blood vessels.

Ralph then quickly constructed a case of flexible glass, which he fitted around the upper part of Alice's body, covering her head and torso.

He took special precautions, moreover, to make the case air-tight.

When the case had been completed and the recording and registering instruments put in place, Ralph went to the laboratory to get the Permagatol.

When he tested the steelonium bomb, labeled "Permagatol," however, he found it absolutely empty.

The discovery nearly paralyzed him. His head swam and he was forced to sit down to keep from falling. This last blow was almost too much. His cup of hope, that Alice could be brought back to life, had been snatched out of his hands.

Without the Permagatol, it was impossible to save her. There was nothing to keep the beautiful dead body from disintegrating. While the Radium-K Bromide stayed the process to a certain extent, the respiratory organs could only be saved by means of the precious Permagatol.

Could he use a substitute gas? It was a dangerous experiment to make, but he had nothing to lose, and everything to gain.

He threw himself with a frenzy into the work and in six hours had compounded a gas that, in its general structure and atomic weight, came close to the properties and characteristics of Permagatol. The gas he evolved was Armagatol, and while he knew that it had never been used for the purpose for which he intended it, he felt justified in risking the experiment.

After the air had been drawn from the glass case, he immediately introduced the Armagatol into it.

The change in Alice's face shocked him, as he watched the Armagatol fill the case. The green gas-vapors cast an unearthly green pallor over her countenance, and the ghastliness was further enhanced by the deathly pallor of her face.

He arranged the electric heating pads around Alice's body, and inspected the registering instruments.

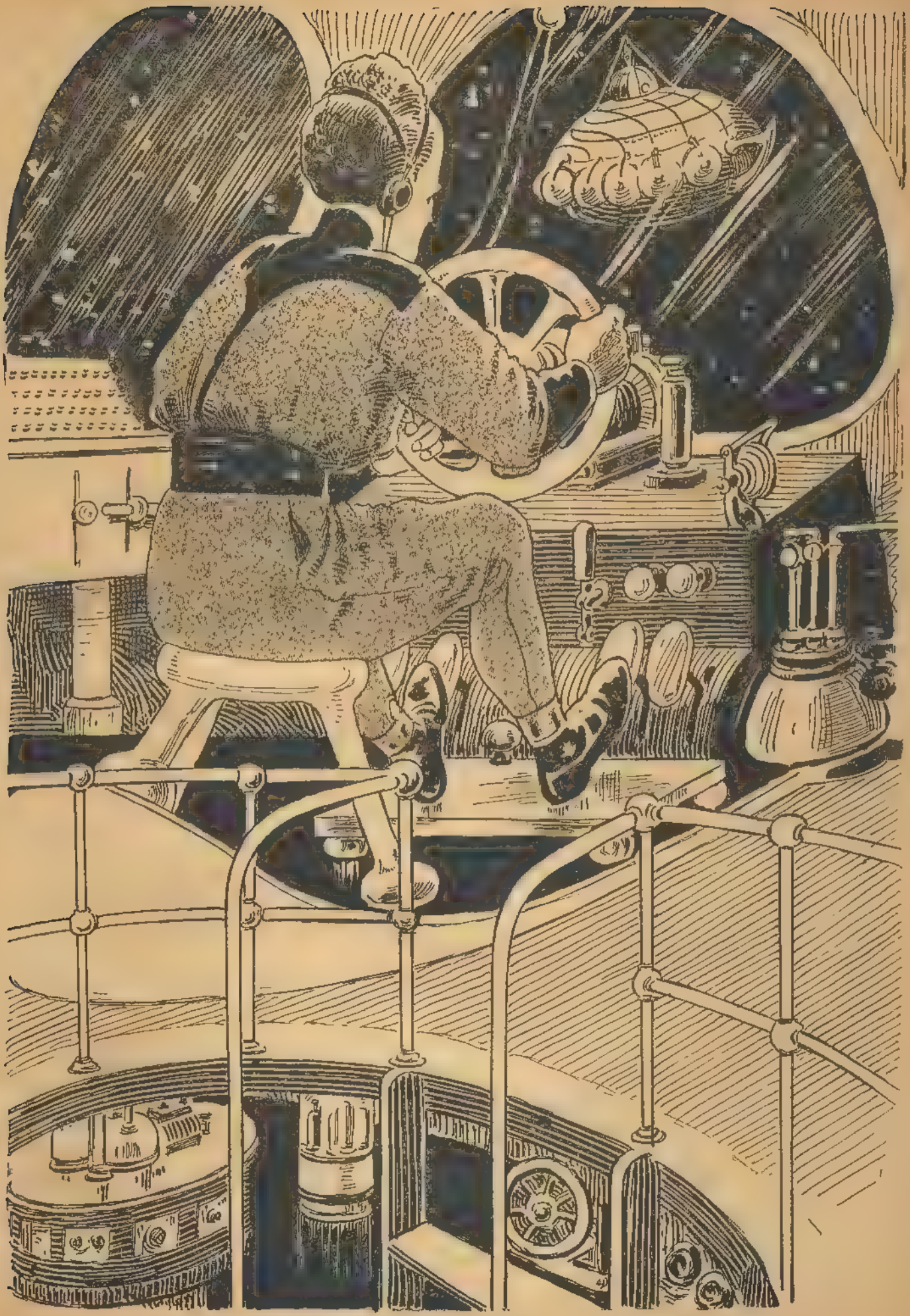
It had now become necessary to take his bearings. He found to his amazement, that instead of being close to Mars, as he had expected, he was moving away from that body.

THE two space-flyers, although their machinery was not working, had been moving rapidly, due to the gravitational action of the nearest large celestial body. This body was not Mars, however. It was Earth. Although, at the time of the encounter with Llysanorh', the two machines had been slightly nearer to Mars, the larger mass, and consequently the stronger attraction of the Earth, had overcome the pull that Mars exerted on the machines, and as a result the machines were now being drawn toward Earth.

A glance at the celestial chart revealed to Ralph that Earth and Mars would be in opposition the next day and that he was separated from Earth by twenty-two million miles. He would have to move faster than Earth if he was to overtake that body. Besides, he was twenty-two million miles "to the side" of the planet.

The Earth was traveling 65,533 miles per hour in its orbit. A simple calculation indicated that, by forcing his space-flyer to the utmost, or 90,000 miles an hour, he could not hope to reach Earth in less than fifty days, as he could only gain about 24,400 miles an hour on Earth.

The next important step was to cut loose Llysanorh's machine. He instructed Lylette to get her things from the Martian's flyer. She started to crawl through the



Ralph had lured Lysanorh' to within striking distance. It was now time to strike.

connecting tube, and that was the last time Ralph saw her alive.

A loud hissing noise, like escaping steam, caused him to rush to the connecting tube, but he was too late. The automatic safety valve had sprung, and the circular door of the connecting tube had been hermetically closed.

The two machines had drifted apart, and as Ralph peered anxiously through one of the windows, he was horrified at the sight of Lylette, hanging by her feet from the circular connecting-tube door of Llysanorh's machine.

The door had closed automatically when the two machines had become disconnected. The air, of course, had rushed out immediately from Llysanorh's flyer. She had died in a few seconds and her body had become distended to a great many times its normal size. Ralph, nauseated by the terrible spectacle, turned away from it. There was nothing he could do.

When he glanced backwards a few minutes later and saw Llysanorh's machine, he gave an exclamation of astonishment. The machine was not to be seen. In its place was a wondrous comet, its tail streaming thousands of miles behind it!

Llysanorh's flyer, which was somewhat larger in size than Ralph's, had "captured" the artificial comet! There remained not a part of it attached to Ralph's flyer. Ralph reasoned that the air that had been contained formerly in Llysanorh's machine had, upon rushing out of the flyer after Lylette's fatal accident, mixed with the gases of the "comet" and thereby assisted the latter in detaching itself from Ralph's flyer.

It remained within range of his vision for many weeks, before it was finally lost in the depths of infinite space, where it would, in all probability, rush through the boundless universe for aeon upon aeon, ere it would eventually collide with some other body, and would be reduced to cosmic dust.

. . . . . .

THE long days during Ralph's flight back to Earth left their indelible imprint upon his mind. Never, in all the years to follow, could he look back upon them without a shudder, remembering the heart-break of the terrible hours in which he sat beside the bed on which his beloved lay.

The nearer he drew to Earth, the more his dread of the coming ordeal increased. He was by no means sure that he could bring Alice back to life; it was not even probable. It was but an experiment at best, the outcome of which could not be foretold. If Armagatol would bring the same reactions as Permagatol, there was a reasonable assurance of restoring Alice to life, but Ralph was inclined to doubt the efficiency of the substitute gas.

He examined her every few hours, and once in twenty-four he looked at the blood vessels. This was made possible by means of his *Platinum-Barium-Arcturium* eyeglasses, which acted in a similar manner to the old-fashioned X-Ray screen. Inasmuch as all the blood vessels of Alice's body were filled with Radium-K Bromide —which latter, like Radium, excited the Platinum-Barium-Arcturium eyeglasses—each blood vessel could be inspected with ease. The invisble Rays (the same as X-Rays) emanating from the Radium-K Bromide solution in the blood vessels, showed Ralph their exact condition.

While all the blood vessels remained healthy, Ralph became greatly alarmed over the change that slowly, but steadily, made itself apparent in the respiratory organs. Some change was taking place which he did not understand. He knew it must be the action of the Armagatol, but he was unable to do anything, as it was impossible to produce the life-saving Permagatol with the chemicals on hand.

Ralph grew more despondent each day, and his hope of bringing his bethrothed back to life grew dimmer and dimmer as the hours rolled on. For the first time since he left the Earth he became *space-sick*.

Space-sickness is one of the most unpleasant sensations that a human being can experience. Not all are subject to it, and it does not last longer than forty-eight hours, after which it never recurs.

On Earth, gravitational action to a certain degree exerts a certain pull on the brain. Out in space, with practically no gravitational action, this pull ceases. When this happens, the brain is no longer subjected to the accustomed pull, and it expands slightly in all directions, just as a balloon loses its pear shape and becomes round when an aeronaut cuts loose, to drop down with his parachute.

The effect on the brain results in space-sickness, the first symptoms being violent melancholy and depression followed by a terrible heart-rending longing for Earth. During this stage, at which the patient undergoes great mental suffering, the optical nerves usually become affected and everything appears upside down, as if the sufferer were looking through a lens. It becomes necessary to take large doses of *Siltagol*, otherwise brain fever may develop.

AT the end of two days, the sickness left Ralph, but it left him worn and exhausted physically and he was subject to terrible fits of depression. At these times, the boundless space about him appalled him, weighing him down with its infinite immensity. The awful stillness crushed him. Everything seemed dead —dead as was that silent motionless figure that had been a living, laughing creature who had loved him— it seemed so long ago.

He felt that Nature herself was punishing him for his daring assault upon her dominions. He had presumed to set the laws of Life and Death at variance, and this was the penalty, this living death, shut in with the living dead.

At such times a madness of fear and despair would grip him. He would fling himself down at Alice's side, his face buried in her cold inert hand, and sob like a child in his loneliness and agony of spirit.

When this had passed, he would return to his state of lethargy, sitting hours at a time, staring moodily at the floor. Gaunt, hollow-eyed and listless, he seemed more mad than sane.

And yet, the tremendous will-power of the man came into evidence when, within forty-eight hours' distance of Earth, he threw off his binding lethargy, and made himself ready, mentally and physically, for his last fight for Alice's life.

He had drawn close enough to Earth now to use the Radio apparatus, and soon he was in hourly communication with his laboratory. He gave his instructions clearly and definitely, and he soon had assurance that everything that could possibly be done for the dead girl had been carefully arranged.

Ralph's flyer landed on top of his tower sixty-nine days after his departure. He was greatly impressed at the sight of the flags of the city at half mast. The town itself was very still. There were no aeroflyers, no vehicles in motion in the streets. Business was at a standstill for ten minutes after Ralph landed. Thus the world expressed its deep sympathy.

Within a few minutes, Alice had been placed on an operating table in Ralph's laboratory, and 16K 5+, the

world's greatest surgeon, who had been summoned, was in readiness. Ralph was placed on an operating table to the right of Alice. To the left lay Cléose, a beloved cousin of Alice.

In a few seconds Alice's arteries had been opened and the Radium-K Bromide solution was drawn off. A quantity of warm, distilled water, containing antiseptic salts, was then pumped through her blood vessels by two assistants. During this time the surgeon had opened the large arteries of both Ralph and Cléose, and had introduced a flexible glass tube into each. In a short time the blood of Ralph and Cléose began flowing rapidly through these tubes into Alice's blood vessels.

Simultaneously a third assistant administered oxygen to Alice, while a fourth commenced to excite her heart rhythmically by means of electrical current.

The brain was stimulated energetically at the same time by means of the powerful F-9 Rays, and while Ralph and Cléose grew paler and paler as their blood flowed out into Alice's body, the latter began to acquire color by degrees, though there was no other sign of life. After enough blood had been taken from the two, the surgeon closed their arteries; and, while Cléose had fainted during the ordeal, Ralph, weakened as he was, remained conscious by sheer force of will.

The surgeon 16K 5+, asked Ralph if he did not think it would be better for him to be removed to another room, but Ralph refused so vehemently, despite his terribly depleted strength, that he was allowed to remain. He asked to be raised slightly higher that he might watch the work of restoring Alice to life, and this request too, was granted.

ALMOST two hours had passed since Alice had first been laid upon the operating-table, and still there was no sign of life. The suspense became well-nigh unendurable, not only to Ralph, but to the workers as well.

Was she lost after all?

Was he fated never to see her alive again?

The great surgeon and his assistants were working desperately. Every conceivable means was used to revive the inanimate body, but all was to no avail. As attempt after attempt failed, the faces of the men grew graver. A tense silence prevailed throughout the laboratory, broken only by the surgeon's sharp low instructions from time to time.

It was then, when the tide of hope was at the lowest ebb, that Ralph beckoned one of the assistants to his side. Though unable to speak above a whisper, so weak was he, he managed with difficulty to convey his meaning to the man, who sprang to the side of the surgeon and in a low voice gave him Ralph's message.

Ralph had sent for a Hypnobioscope, the head pieces of which they fastened to Alice's temples. They brought a number of rolls, and from them Ralph chose one of the world's most beautiful love stories.

It was the last trench in his desperate combat with Nature. It was the supreme effort. It was the last throw of the dice in the game between Science and Death, with the girl as the stakes.

Ralph knew that if the brain was at all alive to impressions, the effect of the story would stimulate it to voluntary action.

As the reel unrolled, Ralph fixed his burning eyes on the closed ones as though he would drive by the very force of his will the impressions coming from the Hypnobioscope deep into her brain.

Then, while they watched, with bated breath, the slight body on the operating table quivered almost imperceptibly, as the water of a still pool is rippled by a passing zephyr. A moment later her breast rose gently and fell again, and from the white lips came the suggestion of a sigh.

When Ralph saw this, his strength returned to him, and he raised himself, listening with throbbing heart, to the soft breathing. His eyes glowed with triumph. The battle was won. His face was transfigured. All the agony, the heart-breaking foreboding of the past weeks passed from him, and a great peace settled upon his soul.

The surgeon sprang to catch him as he dropped, unconscious.

* * * * * *

ABOUT a week later Ralph was admitted by the nurse to the room where Alice lay, regaining her strength. He was still weak, himself, from the loss of blood. Alice had just awakened, and at his step, she turned her lovely face eagerly towards him. Her cheeks were faintly tinged with the delicate pink of the seashell, her eyes were bright with the soft glow of health.

She beckoned to him, smiling into his eyes, and he knelt down beside her, taking her hands in his own, and holding them close. She moved her lips and he bent his head close to them, so that her gentle breath fanned his cheek.

"I can't talk very loud," she whispered. "My lungs and vocal chords are not strong yet, but the nurse said I might speak just a few words. I wanted to tell you something."

"What is it, my darling?" he asked tenderly.

She looked at him with the old sparkle of mischief in her dark eyes.

"Dearest," she said, "I have just found out what your name really means."

Ralph twined a little tendril of her hair around one of his fingers.

"Yes?" he asked with a quizzical smile.

"Well, you see," and the lovely color deepened to rose, "your name is going to be my name now, so I keep saying it over to myself—"

"My darling!

ONE TO FORESEE FOR ONE."
(1 2 4 C 4 1)

THE END

The SEVENTH GENERATION

By Harl Vincent

Author of "The Golden Girl of Munan," "The Ambassador from Mars," etc.

I.

IN the warmth of a heap of tumbled bed clothes, for it was a bitter cold night during that early January cold snap, Robert Wright lay blissfully dreaming. A successful builder of huge dams was Bob—of many great steel and concrete barriers, that harnessed the power of treacherous rivers in the far corners of the earth.

Three weeks previously he had returned from the eastern part of Afghanistan, after completing a project on the Kabul River. Since returning to New York he had made his home in the excellent room he occupied in the Waldorf-Astoria hotel. By now he was becoming restless; looking forward anxiously to the closing of his next contract. This was being delayed by the financial backers and it appeared that he might be killing time for weeks yet, possibly for months. This was, to Bob, a very unsatisfactory state of affairs, since he was no longer accustomed to the ways of modern society. Fifteen years in his adventurous calling had spoiled him for that—and six years of the fifteen he had spent in trying to forget the only girl.

Inaction was the one thing unbearable to him. And now in his dreams he was back on the porch of his shack below Sheikhabad, looking out towards the shanties of his native construction gang. The cook stood in the door of the mess hall, vigorously ringing the bell which called the laborers to the evening meal. Bob's vision blurred—he could no longer make out the familiar scene—but still the bell rang on and on. He stirred in his sleep, rolled over, only half awake.

TALES of the distant future are always welcome by our readers, and we admit a secret hankering for such stories ourselves. What future wonders are in store for the human race? Where are we heading for? Would it not be a wonderful thing if, by some sort of radio astronomical machine, we would be able to tear away the wall of our future and take a peep at our future generations, and study their behavior and their handiwork? This is precisely what the author is depicting in his present story. It is an exceedingly facile tale, with a dash of romance, adventure, hair-breadth escapes and all the other elements that go to make a successful story. You will wish to re-read this story many times.

Still the bell rang incessantly and, as his mind awoke to the realization of his whereabouts, it proved to be that of the telephone beside his bed.

"Now who on earth can that be at this hour?" he grumbled as he snapped on the light and observed by his watch that it was only 5:30.

"Good morning, Mr. Wright," cheerfully spoke the voice of the desk clerk as Bob answered the ring, "Sorry to disturb you so early, but there is a gentleman here who insists on seeing you at once. He says it is very important. What shall I tell him?"

"Who is the gentleman?" asked Bob, now thoroughly awake.

"He says he is Professor Claude Graham, but did not state his business."

"Professor Graham? Oh, yes—I know who he is," answered Bob, now sensing something out of the ordinary. "Ask him to wait about ten minutes; then send him up."

"Very well, Mr. Wright," responded the clerk as Bob replaced the receiver and commenced his toilet.

Dressing hurriedly, he thought aloud, "Professor Claude Graham! What do you think of that? Never met the man in my life. Saw him, though, when he made that fool speech in the Engineering Societies' Auditorium last week. He sure is eccentric. Wonder what he wants of me. Maybe there'll be some fun. Why, the man stated as a certainty that all present means of communication will be obsolete and scrapped in a couple of years, including transportation by land, sea, or air. The gang nearly mobbed him."

He laughed aloud as he remembered the scene. Those dignified engineers had been wildly excited when the professor refused to explain his statement. But they cooled off quickly, for the speaker had always been considered by them a radical and a visionary.

Surveying his reflection in the mirror over his dressing table, Bob was satisfied that he looked sufficiently presentable to welcome his caller. As a matter of fact, he was an imposing and handsome figure as he stood there is dressing gown and slippers—six feet two of erect and solid manhood. Though nearing forty years of age, he had not a gray hair in his curly chestnut mop. Keen eyes, of darkest brown, looked out from their wide setting in a deeply tanned, but practically unlined visage that bore the marks of great strength of character, of intelligence, and of a kindly nature. His smile, as he heard his visitor's knock, revealed gleaming white teeth of perfect uniformity.

He called out cheerily, "Come in," and at his bidding the door opened.

THE early morning caller entered the room slowly and seated himself as Bob motioned him to a chair. He stared for a moment without a word of greeting or explanation. Bob returned the stare with amused interest and observed the almost fanatical intensity of the deep set, penetrating black eyes that peered at him from beneath bushy black brows. The lean, closely shaved face, with its determined jaw, betrayed the confirmed experimenter, the man of science totally submerged in his work. The almost entirely bald, shiny pate, with its encircling wisps of jet black hair, reminded Bob of that of one of his old construction foremen, who had maintained, in all seriousness, that his baldness was caused by scratching his head over so many weighty engineering problems. Possibly this might suggest a reason for the condition of the profes-

They had rounded a point of land and both stopped short with exclamations of wonder....Such a city....Buildings which must have been well over a hundred stories high reared themselves skyward, many of these being topped with enormous landing platforms for air craft.... It was an astounding view.

sor, he thought. He had many a hard question to settle.

"You are Robert Wright, I believe?" asked the professor, a surprising, twisted smile illuminating his features, not unpleasantly.

"Yes, I am he," replied Bob with an answering smile, "And you are Professor Claude Graham, I know through the announcement from the desk, though I have read a number of your writings also. Then too, I saw you at the Institute meeting last week."

"Well, well," said the professor, shaking his head dolefully, "So you were there too. You saw the exhibition I made of myself then?"

Bob grinned at his visitor's discomfiture. "Oh, I wouldn't call it that," he replied, "but you set the big boys in motion all right. What was it all about?"

"We shall come to that presently," the professor answered, apparently again at ease, "But I know that you are wondering what brings me here at this unearthly hour, a stranger to you except perhaps by repute."

"Professor, wondering is not the word. I am burning with curiosity."

"I hope you will pardon the intrusion, Mr. Wright. And I do not feel that we need an introduction. I have followed your achievements for so long that I feel I know you already. Besides, your cousin, Arthur Wright, is well known to me. In fact, it was he who suggested my coming to you."

"Now, that is a surprise. Good old Art! I haven't seen him for years. Should have looked him up long ago," answered Bob. He was beginning to like the professor. "But go ahead with your story. My curiosity still burns."

"You certainly are living up to your cousin's recommendation, Mr. Wright," smiled Bob's newly made friend, "I was not sure whether you would even listen to me. But I will make the story short."

"Shoot. I'm all ears," said Bob, settling back into his chair, "But call me Bob, please. I hate the handle 'mister' at any time."

Another of those twisted smiles from the professor. He was a likable old bird at that, thought Bob.

"Very well. Bob it shall be. Arthur told me he was sure you would be interested in a little adventure between jobs. And I am here to propose one to you—a journey, such as no man has ever before taken."

Bob's curiosity deepened. "Now you interest me strangely," he said. "What sort of a trip is it going to be?"

"You have read of some of my research as well as of Alexander Thomas', I take it?"

"Yes indeed," was the reply. "And I have been extremely interested in the development of the Thomas beam transmission systems. Why, out in the wilds where I usually work it is absolutely revolutionary. I shall never forget how the world ridiculed Thomas when he first announced that he had made it commercially practicable to transmit electric power over a concentrated beam of ether vibrations."

"And how the critics and wiseacres were confounded," laughed the professor, "when Thomas projected one of his beams from the top of the Woolworth building in 1930 and the motor driven dirigible AT-1, obtaining its power solely from this beam, successfully negotiated the trip to Paris. Since then, as you are aware, it has become possible to transmit thousands of kilowatts of energy over a single Thomas beam, and to-day our networks of high tension transmission lines are being rapidly abandoned and replaced by the beam systems."

"What has all that to do with the adventure you propose?" queried Bob eagerly.

"Nothing directly," replied the professor, "but my present remarkable discoveries have developed from some experiments I was conducting along similar lines. My first discovery was that of a beam capable of projecting solid objects through space. Such objects are entirely unharmed and unaltered in the process. The action will probably never be fully understood, but apparently the molecules of which the object is composed become disassociated and carried by the beam impulses, resuming their natural relation and assembly when the power is shut off."

Bob grunted in amazement but did not interrupt. The professor continued:

"More remarkable still, I learned later that the action was identical with respect to living creatures. This was discovered one evening by accident. My assistant had been sent to Pittsburgh and I was to send him a box of cigars, using the beam transmitter to deposit them in his hotel room. The apparatus was completely adjusted; the beam directed and timed. My pet kitten unexpectedly leaped to the transmitting platform and vanished at once. The transmitter immediately ceased functioning, since it was timed to the infinitesimal fraction of a second required to span so short a distance at the speed of light. I sat dumfounded, wondering what my assistant would think of the sudden landing of a very dead kitten in his room. Rushing to the telephone, I asked for a quick connection to Pittsburgh. Imagine my astonishment at being informed that the kitten had arrived, apparently none the worse for its experience, and was at the moment wandering about, investigating its new surroundings!"

BY this time Bob was keenly interested and commenced dressing for the street. "Keep on with your story, Professor," he said, "I feel sure something is coming and am preparing to leave with you for a sight of this remarkable apparatus."

"You read my mind, Bob," said the professor, "I do wish to take you to my laboratory. And my car is waiting at your door. We can reach the laboratory in a short time, and talk as we ride."

Soon Bob was completely attired and the two left the room for the elevators. When they emerged from the hotel, Bob shivered and buttoned his ulster tightly under his chin. It was a very cold morning, but the professor's car was a closed one and they found it comfortable inside. The professor instructed the driver to take them to the laboratory; then he continued with his story:

"While further investigating the action of the first beam, which I have called the 'Y' beam, I found that certain impulses of infinitely higher frequency would produce an even more astounding result. The second beam I have called the 'Z' beam for identification. The 'Z' beam was found capable of transmitting solid objects, including living creatures, not in space but through TIME. That is: it projects such objects in the fourth dimension after the fashion of 'The Time Machine' of H. G. Wells. Again, as in the case of the 'Y' beam, this projection is accomplished without any harm to the transmitted object."

"You mean that objects, even persons, are projected into the past or future?" asked Bob incredulously.

"Exactly," the professor replied, "Probably this seems to you like one of the wildest dreams of fiction. But you must not forget that we are living in an advanced age and that many things are now accomplished facts which, a few years ago, were considered utterly impossible.

"With the 'Z' beam I found that a man could be transported bodily into another age, either past or future; then returned to the present, retaining full memory of all that transpired during the trip. This

has been done both with my assistant and with myself. The person or object subjected to the 'Z' impulses does not change location, but is merely transported to the desired period of time.

"Through the agency of the 'Z' impulses, my assistant narrowly escaped capture by the Indians in the year 1450. I myself, was eyewitness to a battle of the American Revolution, which battle took place within view of the location of my laboratory.

"While the movement of the 'Z' beam through space ceases upon reaching the object under its action, further experimenting demonstrated the possibility of using both beams simultaneously, thus effecting transmission through time and space together. This is, I believe, the final result of my work and the ultimate accomplishment of which, with respect to its action on human beings, I wish to demonstrate today, with my assistant and you as subjects.

"A dozen instances of successful tests with dumb animals can be recited. But I have not as yet projected human beings with the combined 'Y' and 'Z' impulses. My assistant is entirely willing to make the experiment, and I should like very much to accompany him. Unfortunately, an expert must remain at the controls and, since I am not ready to take others into my confidence before a convincing demonstration has been made, it is necessary to obtain some other person to take the initial trip with him. Having two people make the journey will provide double proof of the success of the experiment, especially if one is a man of your standing and reputation. Will you go?"

"You mean, will I make such a trip into the past or future, at the same time visiting some distant place?" questioned Bob, hesitatingly.

"Yes. But the distance need not necessarily be great, either in time or in space. I merely desire some concrete evidence of the successful operation of the completed equipment," the professor replied.

"How about getting back from such a trip?"

"Perfectly simple. That is all taken care of in my apparatus. You shall see for yourself how this is accomplished before making the experiment; and I can assure you there is no danger as far as the trip itself is concerned. What you may encounter in the past or future is, of course, out of my control and you must work out your own salvation in case you run into any dangers while away."

Bob considered for a moment, the professor eyeing him anxiously the while.

"Yes, I'll chance it. It sounds very fascinating," answered Bob. "But which way do we go? Into the past or the future?"

"You may choose for yourself, Bob," beamed the professor. "Any location or period of time suitable to you will be satisfactory to me. But here we are at the laboratory. Let us enter and I will show you around before making the final arrangements."

II.

THE car had stopped before a dark-colored, low stone building nearly hidden among the trees in one of the few remaining isolated sections of Washington Heights. As Bob followed his guide down the narrow path to the laboratory he heard the pleasantly familiar hum of high speed electrical machinery but, as the door was opened for his entrance, he was somehow filled with vague forebodings.

"This is the power plant which supplies the several voltages and frequencies required by my equipment," the professor explained briefly as they passed through a medium sized, brightly lighted room in which were installed four motor-generator sets, all busily humming away on their concrete foundations.

The laboratory proper was a much larger room, also brightly lighted, and crammed with electrical apparatus. At a desk near the door sat a small, somewhat gray-haired man, whose face was nearly hidden by an enormous green eyeshade. He was busily engaged with a mass of calculations. So engrossed was he that he did not at once look up to see who had entered. But upon being addressed by the professor he arose, removed his eyeshade, and absentmindedly took Bob's hand as he was introduced as George Lesch, the professor's assistant.

"Now that the formalities are over," said the professor, "I know you are anxious to look over this junk of mine and get an idea as to how it operates. George can get back to his figures while we investigate."

Bob was first led up a spiral staircase to the flat roof of the building. Here the professor uncovered what appeared to be a huge searchlight, mounted on trunnions. This, he explained, was the reflector which projected the carrier beam and its impressed impulses in any desired direction, the exact setting being controlled by exceedingly sensitive vernier adjustments made in the laboratory below.

By this time Bob's interest was mounting rapidly and when they returned to the laboratory, he overwhelmed the professor with a flood of questions.

"Just a moment," begged the professor with a grin, "All of your questions will answer themselves while we are examining the apparatus. Here is the transmitting platform."

He pointed to a sort of table in the middle of the room. This was about four feet in diameter and was raised from the floor a foot or so on insulating legs. Surrounding it were three huge vacuum tubes. One of these was the mixing tube which collected the impulses from the other two and impressed them on the carrier beam from the projector on the roof. The first of the other large tubes emitted "Y" impulses, the second "Z" impulses. The object to be projected was placed on the platform within the influence of these tubes.

With great enthusiasm the professor described all portions of the equipment. The two separate impulse generators connecting with the tubes at the transmitting platform, he covered with considerable detail. The control equipment, which was very elaborate and delicate of adjustment, he dwelt upon at length. The series of maps locating prominent cities and towns with precise accuracy for directing the beam; the gyro-compass and other sensitive instruments, all were covered by the professor in lecture-room style. The general principles Bob was able to absorb, since his education and experience had given him considerable knowledge of electricity.

When the plant and its method of operation had been explained, George was called from his labors and the three repaired to the private office to discuss the proposed experiment.

"How do you feel about it now?" asked the professor of Bob as they seated themselves.

"It all sounds plausible to me," he replied, "and I have no intention of backing out. When do we go, and where?"

"That's for you to say. George is willing to try anything—in fact he has been all over the world already, via the 'Y' beam, and has visited several different ages through the medium of the 'Z' beam. I would suggest that for the first trip by combined beam, you confine yourselves to this country for location and to within say two hundred years for time."

George now spoke up. "If it is agreeable to you, Mr.

Wright, why not choose a warm climate? It has been a terrible winter and I think both of us could stand a little warming up."

Bob laughed, "That suits me exactly. I haven't been warm for weeks. Of course I suppose we could visit some temperate clime in the summer season, but I am for Florida myself."

"That's great, Mr. Wright," said George.

"Please call me Bob," was the reply, "Formality never agreed with me. I shall call you George, if you don't mind."

"That's great, Bob," nodded the little man with pleasure. Bob took to him at once. Quite evidently he had been, for years, a routine-bound assistant to the professor. But the twinkle in his little gray eyes and the smiling lines around his sensitive mouth betrayed a hidden sense of humor. He was a nervous little fellow, but you could see that he was not at all timid. Probably his several experiences with the trips *via* beam had done him worlds of good. About twelve years older than himself, Bob took him to be.

"Florida seems as good as anywhere," said the professor, drawing forth a map of that state, "Let us set the definite location and then decide what period of time is to be visited."

BOB'S finger strayed idly over the map. He was remembering sadly his last visit to Sarasota six years before; in the month of April, it had been. The weather was glorious then. His first and only romance was shattered at that time. Eileen Cummings! Her beauty still haunted him. She had loved him too. But the stern edict of a wealthy parent had given her to another man—a worthless and vicious idler. Bob was only a struggling young engineer in those days, without influence or funds. No words of his old sweetheart had ever reached him, but he had never forgotten. Neither had he ever seen or known another who could take Eileen's place in his heart.

"Sarasota. That's the location, Professor," he decided.

"All right. Sarasota it shall be. But; past or future?"

"Future," said Bob grimly, thinking of the past with a chill. "And let's make it the entire two hundred years. Just two centuries from now, in April. How is that?"

"Fine," said the professor. He wrote on a sheet of paper "April 15, 2132—2:00 P. M." "The exact time will make no difference to you, but we must determine some definite figures for setting the controls. Now about the location. I believe we should choose a point a few miles outside the present limits of the city. Sarasota may be much larger in two hundred years, and we don't wish to project you into the midst of an unsuspected marble statue or something of the sort."

He marked a spot on the coast in an isolated section four miles south of the city limits, and Bob agreed with George that this was entirely satisfactory. They would run some chances at that. But the professor advised him that even though they might be projected into the heart of some solid object there would be no personal danger. The disassociated atoms carried with the beam would merely merge temporarily with those of the solid object and be carried back to the starting point and reassembled, properly and unharmed, when the beam was automatically sent out for their return. The experiment would then be valueless however, since no memory of the visit could be retained.

The professor set George at work with scale and protractor making accurate measurements for the setting of the direction and distance controls.

"Calculate all the adjustments, George," he directed, "including the return trip timing. Better figure on staying two weeks, but you should return here on this very day in time. Say ten A. M. leaving time here, returning at noon."

"Very good, Professor," said George, already at work.

Bob had faced many dangers—overcome them too. But they were of the material kind. Forces over which he had no control were something a bit different. He had a queer feeling about this whole business. It savored too much of the supernatural, yet when he saw how methodically and confidently George went ahead with the preliminaries, he felt rather ashamed of his qualms. He banished from his mind any thought of reconsidering.

"Bob," said the professor, "there is nothing for you to worry about personally in this experiment. But I am sometimes fearful of the result of giving my invention to the world. Suppose it should reach the hands of a criminal. What damage might result! A thing of this sort is safe only under strict government control. And I have several engineers from Washington coming to-morrow. That is why I must make the final test today. You are a gift from the gods, and I shall never be able to repay you adequately."

"The experience will be payment enough," said Bob. "I feel in my bones this is going to be a real adventure and I'm anxious to start."

George now entered the room with several sheets of paper in his hand. These were the computations for their trip. The professor took them and looked them over.

"Seems to be all right, George," he observed, "And it is nearly ten now so you two had better prepare."

He turned to Bob. "And Bob, I must give you a word of warning with which George is already familiar. This is of extreme importance. You will not undergo any alarming sensations at the instant of projection. But what you must remember is to accurately mark the spot at which you arrive and to return there shortly before the time set, so as to be on the precise spot when the beam is sent out for you. You must keep close record of the time and not fail to be there."

He had turned to the controls, directing Bob and George to the transmitting table. As he proceeded with the adjustments, the two men mounted the platform and stood in its center with arms over each other's shoulders. They exchanged smiles in complete understanding.

With the time near, something akin to abject terror gripped Bob for a moment, but he quickly controlled this feeling.

"Ready!" shouted the professor as he closed the starting switches, "Don't forget my instructions. Good luck!"

As the actuating lever was thrown, Bob involuntarily blinked at the bright purple aura which suddenly surrounded him. He experienced a sinking sensation such as one feels when descending in a high speed elevator.

THE sensation became real—he was sinking in water! All solid support had failed. George's grip over his shoulder tightened—then released entirely. Bob was submerged—in icy salt water, as an involuntary indrawn breath told him. Opening his eyes, he found himself at the surface again with George floundering about only a few feet away.

"Help!" shrieked George, "I can't swim, Bob."

"Don't worry, old man," sputtered Bob, blowing like a grampus, "Here I come."

With three powerful strokes he was at the little man's side—grasped him just as he was going down for the second time.

"Here," he grunted, as George wildly grabbed him, "Let go. You're all right. Just relax. Don't grab. The shore is not far off and I can make it easily with both of us. Just rest your hand on my shoulder."

George was a good sport—a strong mentality. Despite his hysterical fear he calmed his mind by sheer force of will; did exactly as Bob told him.

The shore was farther away than it seemed; the water was rough, and the ebbing tide strong. For all his powerful crawl stroke, Bob had a bad time of it, what with the weight of his own wet clothing and the drag of George's helpless form. George never uttered a word of fear or complaint and eventually, exhausted and gasping for breath, Bob reached the sandy beach and helped his companion from the water.

For several minutes he lay prone, too utterly weak to move or talk. George watched him anxiously until he recovered.

"Well, that's a job I didn't expect," said Bob, when he was able to speak, "Feel O. K. George?"

"Yes Bob; thanks to you," George replied solemnly. "But we are both in a pretty pickle. Do you realize that?"

"No. How come?" said Bob, sitting erect and throwing his drenched hair back from his eyes.

"Remember the professor's warning? How are we going to return? Fine chance we have of marking the spot where we landed. When the beam reaches out for us, where shall we be?"

"Christopher Columbus! That's right. How do you suppose that happened, George?"

"All my fault, I suppose," groaned the little man. "Either I made an error in my calculations or the professor made one in setting the controls. It is evident that we missed the coast by at least a quarter mile. I could kick myself."

"Now wait a minute, George. Maybe it was neither your fault nor the professor's. Suppose the coast line has receded in these two hundred years, or a tidal wave submerged part of the coast, or something like that. Anyhow, there's no use crying over spilt milk. Let's investigate our surroundings and find out where we are."

With that Bob jumped to his feet; surveyed the immediate neighborhood. The prospect was not encouraging. It appeared to be a desolate coast. They looked at each other soberly. What was in store for them? How *could* they return?

III.

"LOOK overhead!" exclaimed George in a startled voice. "Guess there was no mistake in the two hundred years anyway."

"Man, what a sight!" Bob marveled. "We sure did reach the aviation age all right."

What they saw was a huge air liner traveling swiftly northward—a great ship, fully a thousand feet in length and with no less than nine decks. So swiftly did it pass that they barely had time to see what it looked like. But it was plain there were no wings—neither was a sound heard—it moved silently as a bird. They stared in amaze; then noticed for the first time that the air was filled with speeding, darting ships of similar design but much smaller. So swift were these and so high did they fly, that they seemed like swarms of darting insects.

As to evidence of travel on the surface, there was none. Obviously the world had taken to the air. The countryside appeared to be deserted.

"That's that," remarked Bob. "Well, maybe we shall have to stay here, so I guess we had better start for somewhere and see what we can learn. Luckily the air is warm. Otherwise we should be much more uncomfortable than we are. Let's go."

George hurried to catch up as Bob struck out along the shore toward the north. "I shall never forgive myself," he lamented, "if I made that error. What shall we ever do? It will be impossible to return to our own time."

"Oh, forget it," said Bob, good naturedly. "While there's life, there's hope. Don't blame yourself. And perhaps it won't be so bad, even if we do have to stay."

They had rounded a point of land and both stopped short with exclamations of wonder as an astounding sight met their view. Less than two miles ahead, the walls and towers of an immense city were seen. And such a city! The skyline of old New York was dwarfed by comparison. Buildings which must have been well over a hundred stories high reared themselves skyward, many of these being topped with enormous landing platforms for air craft. Each building was of a different color than that of its neighbor, and the entire contents of an artist's pastel box seemed to have been expended in providing the many hues and tints. Over the city a veritable cloud of the little air craft eddied like flies around a street lamp. The great liner they had seen was just landing at an immense stage atop the near wall of the city.

"What do you think of that?" ejaculated Bob. "If that's Sarasota, I'm one of Solomon's wives. But it sure does look interesting."

"I should say it does," agreed George, showing the first enthusiasm since their arrival, "Wonder how we shall be welcomed there, though."

"That remains to be seen; but let's get there."

They proceeded toward the city at a rapid pace and within forty minutes were standing before a large gate in the wall. By now their clothes were dry and both felt much more comfortable, though somewhat bedraggled.

Being challenged by a sentry at the gate, Bob boldly inquired, "What city is this? We are two lost adventurers. Our speedabout capsized and fell into the sea, from which we have just saved ourselves. We are from the west."

"This is *Sanscare*, the greatest pleasure city in the world," haughtily replied the guard. "You fell into the Gulf of Mexico, if what you say is true. What do you wish?"

"Shelter, rest, and clean clothing," was Bob's equally haughty reply.

"Just a moment," replied the guard with a bit more friendliness. He disappeared within.

"Lucky I saw that sign, 'Speedabouts for hire'," laughed Bob, "Or I should not have known what to call one of the funny little air ships."

"Hush," whispered George. "Here he comes."

The guard had returned with a companion and now allowed them to enter. When the gate swung to behind them, they were turned over to the second man, who led them through the entrance of a near by building. Here they were taken into a small lift which dropped them several stories below the street level where they emerged into a smooth walled passage. In a moment a small vehicle, not unlike a gondola, stopped before them. When they seated themselves, the strange car started silently and immediately attained great speed, gliding noiselessly, with many times the velocity of a subway train, through the lighted tunnel.

Bob noted with amusement that George was examining the car and passage meticulously. There were no rails; only a smooth metal floor. No mechanism was visible in the car. It was drawn by an invisible force

and was actually not in contact with the smooth floor or walls of the tube. Possibly this car was drawn by some magnetic means, which at the same time suspended it, and was made for gliding through the air without friction against the surrounding surfaces.

AFTER several miles of this sort of travel, the car halted. They entered another lift—were carried up, up—what seemed like an endless distance. At last the motion ceased and they were led out into a hall from which opened many doors. Leading them to one marked "General Manager," the guide bid them enter and there left them.

When they entered, a secretary greeted them, not uncivilly:

"Names, please?" he asked, pad in hand.

"This is George Lesch," replied Bob, nodding toward his companion, "I am Robert Wright. We are the two who fell into the Gulf with our wrecked speedabout."

"Oh, yes," smiled the secretary, "Mr. Travis, the General Manager of the City, is expecting you. He had word from the south gate of your coming. Come this way, please."

They followed through an inner room, which appeared to be a Director's room, into the luxurious office of the Manager. In the middle of this office, at a large mahogany desk, sat a beetle-browed, swarthy-complexioned man of some fifty years of age. He had the bull neck, heavy shoulders, and protruding jaw of the professional pugilist. When he looked up quizzically, Bob took an immediate, instinctive dislike to the man.

"So you are the two castaways," he remarked sneeringly. "Is the story you told at the gate true, or are you just a couple of bums looking for free pleasure?"

"Sir," answered Bob with fire in his eye, "I don't care who you are, nor how much power you have, you will regret an attitude like that. Unluckily, our papers were all lost with our speedabout. But we can prove our story if need be."

George was aghast at his partner's effrontery, but evidently it was effective, for Travis softened somewhat.

"Now don't get huffy," he said. "We must be careful of unrecommended strangers here. But until your credentials arrive, I shall have you at my place as guests."

"Thank you sir," responded Bob, "both for my friend and for myself."

Travis pressed a button and the secretary returned. "Have these men taken to my home and provided with a change of clothing and with rooms," he said shortly. Without another look in their direction, he returned to his work.

As they were led to the roof, George betrayed concern. "We are practically prisoners," he whispered to Bob, "and how on earth are we to substantiate that yarn you told?"

"Oh, we must tell the truth eventually. But I dared not spring it so soon. They would likely have locked us up, thinking us insane."

"Guess you're right," admitted George, as they came out on a large landing stage on which many of the small craft were parked.

With a few words of instruction to the pilot, Travis' secretary left them in one of the little speedabouts and departed. The tiny craft rose vertically, hovered, spun about, and darted swiftly in a northwesterly direction. Again there was that silent, effortless motion that betokened an unknown force. The great city spread beneath them—surely it must harbor more than ten million souls, thought Bob. Most of the taller structures were topped by landing platforms for the countless air craft that spiralled and circled, shot earthward and skyward all about them. They were headed toward the coast and soon came to rest on a platform atop a residence facing the Gulf.

Here they were met by a liveried servant who took them below and escorted them to a suite of rooms which he stated was to be theirs while in the house. Changes of raiment were laid out for them, and they proceeded to rid themselves of their wrinkled and soiled clothing at once.

While dressing, Bob talked cheerfully. "This looks as if our welcome is really more hearty than the Manager's manner promised," he said. "And did you notice the calendar on his desk when we were in his office?"

"Yes, I did, Bob. The date checks with my calculation all right. But all the same this thing worries me. I fear we shall have trouble here."

"Don't be so pessimistic, George. I think myself we are in for a lot of fun."

Bob, now completely dressed, gazed out the window as George struggled with the unfamiliar garments with which he was attiring himself.

"Boy, oh boy!" exclaimed Bob as a slight, girlish figure in crimson bathing suit ran up the beach from the water and started for the house, "What have we here? I'm going to investigate. Hurry down, George."

With characteristic impulsiveness he was gone and, as the door slammed, George looked after him, shaking his head gravely.

BOB rushed blindly down the long hall until he came upon an open staircase. Three flights he clattered down, noisy as a school boy. At the bottom he entered a large reception hall, beautifully decorated. Wide open doorways opened from this directly on the broad, covered porch which faced the Gulf.

Just as he started for the nearest exit, the figure in the red bathing suit burst in. Flushed from her exertions and altogether adorable, the girl stopped short at sight of the stranger.

"Oh!" she said in a startled voice, "I did not know father had guests."

Bob stared agape. This trim little figure was a picture out of the past. Every sweet curve of the lithe body; the quick bird-like throwing back of the perfectly modeled head with its glorious halo of sun-lit blond hair; the flashing smile; the innocent questioning look from out the great blue eyes; all these things were characteristics indelibly left in his memory.

"Eileen!" he gasped.

"Why—why—how did you know my name?" the girl stammered, flushing still more deeply.

Bob passed his hands over his eyes. "Don't mind me," he apologized. "You remind me so much of someone of that name I knew long ago. Just a coincidence that your name is the same. Sorry I startled you."

"That is nothing to bother about," replied the girl with another of the brilliant smiles. "Any guest of father's is welcome here. It is strange about the names and the resemblance though. I am Eileen Travis.

Bob bowed. "And I am Robert Wright, Miss Travis," he said. "Thank you for not being offended. Your father sent my friend George Lesch and me here almost unannounced and I trust we are not intruding."

His puzzled eyes did not leave her face as he talked and again her blush heightened, entrancingly.

"Not at all, Mr. Wright," she smiled. "Make yourself entirely at home while I dress. Why not take a stroll down to the beach in the meantime?"

"Thank you, I will," said Bob, still staring in wonderment as the girl moved toward the stair.

"Wait for me on the beach then, Mr. Wright. I shall not be long."

Bob watched her as she disappeared up the first flight. Again he brushed his hand before his eyes. Surely he must be dreaming! He walked out on the porch; stared at the tumbling blue waters of the Gulf. Why, this was Eileen Cummings—*his* Eileen—reincarnated! It was unbelievable. Now the significance of the name Travis struck him fully, too. He had found it familiar, unpleasantly so, when he heard it this afternoon. Now he knew why. The man who had taken his Eileen from him years ago had been a Bert Travis. What could this mean?

In a swirl of confused emotions, Bob wandered to the beach and threw himself full length in the sand. The long suppressed hurt returned, more poignant than ever. It was incomprehensible that so remarkable a resemblance could exist without some connection, however remote it might be. And the coincidence of the two names—Eileen and Travis—why, that had been Eileen's married name. He groaned aloud, as thoughts of the blasted hopes of long ago crowded his tortured mind.

"What's wrong, Bob?" interrupted the cheery voice of George. "You sound and look as though you had lost your last friend."

Bob hesitated before replying. Never before had he mentioned his old disappointment. But he was so upset by this vision of Eileen, and George was so sympathetic, that he could not resist unburdening his mind. George listened with solemn mien and with nods of understanding. He was a great lover of romance himself—secretly addicted to the reading of sentimental fiction.

"It sounds like a novel, Bob," he commented excitedly when the tale was ended, "and I believe there is a symbol, if not an actual relation, connecting the Eileen of the past with the one of the present—or rather future, as we should call it at home."

"I am so sorry, gentlemen," broke in the voice of Eileen Travis from behind them. "I could not help but overhear a part of your conversation, though I had no intention of eavesdropping."

She gazed at Bob wide-eyed as he jumped up in confusion and stammered, "Eileen—Miss Travis—I am more than sorry that you heard anything which might disturb you. Please forget it. We were just talking nonsense."

"You are always apologizing to me, Mr. Wright," she replied, more at ease than he, "and I won't have it. But you have not introduced me to your friend."

"I beg your pardon, Miss Travis. This is Mr. Lesch." Graciously acknowledging the introduction, she again turned to Bob. "And now, Bob, as your friend calls you, I must know more about this," she said. "I heard enough to whet my feminine curiosity. And you must tell me the whole thing, as I have just learned that you are in danger here. I may be able to help you, but I must know more about you first."

"Miss Travis, I am afraid that is impossible," Bob replied, haltingly, "You see—you know—"

"Yes I know, Bob—more than you think. For one thing I know that you two have come here out of the past. I know it by what you may call woman's intuition, but which is in reality a telepathic sense with which I have the personal good fortune to be endowed to a high degree. Come, tell me all." She smiled beseechingly, then crimsoned.

George discreetly withdrew to the porch.

Bob looked into the blue pools that were her eyes; saw tears there. Impulsively he bent low; kissed her fingers. She thrilled at his touch; sank to the sand; pulled him to a sitting position at her side. Then in alarm at her own unexplainable emotions, she drew slightly away.

Bob told his story with Eileen listening in starry-eyed amazement. Each new thought uttered by this man from the past, each betrayal of the character that was his, drew her more and more to him. To him she was the old Eileen. He loved her as of old—could barely resist taking her in his arms. Strangely she responded to his feelings—put herself in the place of the namesake of long ago—loved him too.

As he finished his story, his eyes looked into hers pleadingly. The look was returned with tenderness. She leaned toward him, her lips parted in excited expectancy.

IV.

"EILEEN!" barked the unpleasant voice of her father, who had approached unawares, "Into the house at once! I will deal with this impostor."

"But father," she begged, jumping to her feet.

"No words—go!" he thundered.

Bob had arisen; crouched like a panther; seemed about to spring at the throat of the man. He thought better of the primitive impulse as Eileen, with bowed head, started slowly for the house. He stood erect; faced the raging Travis.

"What do you mean by terming me an imposter, Mr. Travis?" he asked angrily.

"I spoke too soon, Mr. Wright. Please overlook it," he smirked. "But I was angered by the too apparent interest in each other displayed by my daughter and you. I probably misunderstood."

There was nothing wrong with this speech—apparently. But Bob doubted its sincerity. The original outburst had been too spontaneous—too real. However, his position was such that he dared make no further retort, especially since his host led him at once toward the house, stating that he would like to have a long talk with him concerning his adventures.

They passed through the large hall without encountering anyone—even George had disappeared from the porch. Bob did not think much of this at the time but had plenty of cause to remember it later. They entered a good sized library where Travis motioned him to a large easy chair.

"Have a seat, Mr. Wright," spoke Travis, ingratiatingly. "No doubt you are anxious to tell the story of your trip and of the wrecking of your craft over the Gulf."

Bob nodded; sank unsuspectingly into the chair. There was a snap—strong steel bands clamped around his body, his ankles, his wrists. He was pinioned in the innocent looking chair; a prisoner; helpless. He glared at his captor, who stood over him grinning triumphantly.

"Fooled you, didn't I?" Travis gloated. "You thought you could put something over in *Sanscare*. But John Travis is too smart for you. I guess you will talk now too."

He pulled a bell cord. Two glowering men came in, carrying between them a strange looking machine which they set before Bob's chair. These men looked like jailers—later they proved to be just that.

The instrument stood on four legs; looked somewhat like a dictating machine. From it extended a long tube to which was attached a clamp. This was fastened about the biceps of Bob's right arm as he vainly struggled to free himself.

"Now," croaked Travis, as a hidden light illuminated

the front of the machine and a humming commenced inside, "you will answer my questions and the chart of this instrument will testify infallibly to the truth or falsity of your replies. What is your right name?"

The two newcomers drew back slightly to permit their master to face Bob directly. Bob fumed and sputtered; strained at the unyielding metal which bound him.

In a rage he shouted, "My name is Robert Wright, as I told you."

The little needle tracing a red line on the paper chart moving across the face of the machine did not flicker. When he observed this, Travis muttered, "That much is true, anyway. Now, where did you come from?"

"San Francisco," lied Bob. The needle jumped an inch, making a corresponding irregularity in the red line.

"The first falsehood," sneered Travis. "You can't lie to that machine, Wright. Might as well make a clean breast of it. Give me the truth now—all of it."

At that moment the door flew open. Eileen rushed in and grasped her father's hand. She pleaded with him to release Bob—told him she knew things that proved him to be an upright man. This so infuriated the brute, that he screeched with rage; threatened to strike her; ordered his henchmen to take her out. Bob's blood boiled as the two huskies roughly seized her and hustled her from the room between them. He yelled invectives at the raging father. This further infuriated Travis to such an extent that he struck his helpless prisoner across the face with the flat of his hand; struck so hard that blood spurted from Bob's lips.

"I'll get you for that, you maniac," yelled Bob, "Where do you think you are anyway? In the middle ages?"

"Ha! Now we come to something," was Travis' retort. "Where do you hail from? Surely from some other world. Or from some other age, if such a thing is possible. Now tell me where?"

Bob refused to answer. He could not understand the viciousness of this man—did not know what would be the result of a disclosure such as he would be constrained to make. Thinking it safest to remain silent, he did so in spite of the fuming and raging of his captor —in spite of threats of dire results, even of torture."

Eventually Travis tired of his task. It had become dark now—probably the man was hungry, thought Bob.

"Well, maybe you will feel more like talking in the morning," snarled Travis, "after a night in the dark here, bound as you are. In any event I shall get the truth from your friend. My men have him elsewhere and I think he will not be so reluctant to talk."

The three men left the room. Bob heard the key turned in the lock. He was alone. And his bonds were starting to chafe and bind. What would they be by morning?

BY much squirming he managed to ease himself into a somewhat more comfortable position—actually dozed off after a few hours of puzzling over the situation.

After a period of semi-consciousness, of troubled dreams, he was awakened by the soft turning of the key. Remaining perfectly quiet he heard the door open; then close again. Someone was tiptoeing across the heavily carpeted floor. He held his breath. He did not know what to expect in this strange place and time.

"Bob, are you awake?" whispered the soft voice of Eileen.

His heart missed a beat—she had called him "Bob" again.

"Yes, Miss Travis. What is it?" he replied.

"You poor boy. Are you awfully uncomfortable?"

"This isn't exactly a bed of roses. But outside of two swelled wrists I am doing pretty well," he answered, much cheered by her evident interest.

"Father is out," she continued, "hunting your friend, Mr. Lesch. They had him locked in upstairs but he escaped and father has the whole city turned upside down in the search for him. I am terribly sorry about this."

She felt for his hand; found it; stroked the swollen fingers, and continued:

"I must make an admission, Bob. My father is not entirely responsible mentally. I have known it for some time, but apparently it has not been observed by others. Even if it had been there would have been nothing done or said. Father has this city in his control as absolutely as one of the ancient despots of your age.

"Things are different now from what they were in your time. Though you did not know it, you could not possibly have succeeded in the deception you attempted. You were suspected from the first. Every inhabitant of the world is now indexed in elaborate records—fingerprints—individual identification numbers. In the circumstances you described at the gate you should have reported your numbers immediately. But of course you did not know this—had no numbers. Your fingerprints were obtained without your knowledge and could not be matched in the master index. So you and your friend were marked at once as escaped criminals from one of the other planets. In your time there had been no communication with other worlds. But we have now made visits to several and have visitors here from Mars regularly, humans like ourselves.

"Father has been obsessed for several years—in fact ever since mother died—with the idea that men were coming from 'the nothing' as he called it, to despoil him and to steal his daughter. Poor father! He loves me, and I did not know until to-night that he is the victim of old family history.

"For over a year I have marveled at the realistic dreams he has had of the coming of two kidnappers. Sometimes he would awaken moaning and come to my rooms to see if I was still there."

Here Eileen paused—wept softly a moment. As well as he could, with his wrist so tightly clamped, Bob caressed the fingers which touched his own. She continued:

"To-night, while he was attempting to get you to talk, I did an unfilial thing. I ransacked his room—found an ancient book which explained all. Your story of what happened over two centuries ago is substantiated in that book. The original Eileen—your Eileen—led a very unhappy life with my ancestor, the Travis who stole her from you in old Sarasota, the city which was rebuilt a hundred years later and renamed 'Sanscare.'

"So brutally was she treated, that she died in less than three years from a broken heart. Her old colored 'mammy' laid a curse on the husband and the story of the curse has been handed down through the generations of Travises until the present time—the time set for final fulfillment. Do you wonder father has become unbalanced and that he suspected you two when you came?

"It all reads so real, so true to what has occurred today, that I can scarcely credit my senses. To think that in this day and age, the ancient prediction of an old negro witch should come true!

"The husband of the first Eileen killed himself shortly after her death, leaving the only child, a boy, penniless. This fulfilled the first part of the curse. The remainder predicted that the name would be perpetuated for seven generations and that in the seventh there would arrive

the first girl child—a reincarnation of the first Eileen. She was to be wooed and won by 'one from the nothing,' an unwitting avenger, who would come with a male companion. The last male descendant of Bert Travis was to be punished thereby for the wrongs his ancestor had perpetrated."

Again Eileen sobbed softly. Bob gulped. He could say nothing. He knew old Hannah, the 'mammy' of the prophecy. She was a decrepit old negress, feared by her own race and credited by them with supernatural powers. Bob had laughed at those superstitions at the time. But she had loved and cared for her charge, Eileen Cummings.

Finally he spoke, "Well, that is a strange story, Eileen. I must call you Eileen—dear—dear Eileen." The words came with difficulty. Bob was embarrassed, but this was his own Eileen. Nothing could shake that conviction from his mind. He was the "one from the nothing." "And, sweetheart," he continued more boldly, "what do you think of this prophecy?"

Her sobs grew less and less; soon stopped entirely. Her fingers opened; drew away from his. Bob waited with a thumping heart. He could see nothing—the darkness was complete. A fragrant something brushed his face; soft warm lips, moist with coursing tears, met his own; clung.

A sound overhead broke the ensuing stillness. Bob stiffened in his bonds. Eileen jumped back; ran for the door. "Don't worry Bob," she called softly. "All will be well."

The door opened and closed. Again the key turned in the lock. For a moment all was still. Then came the sound of heavy footsteps thumping down the stairs. The door was opened; the lights snapped on. Bob feigned sleep.

Travis strode across the room with several of his men trooping after.

"Wake up, you!" he shouted and shook Bob roughly.

Bob opened his eyes; blinked in simulated drowsiness. "What's the matter now?" he asked.

"Matter enough," growled Travis, staring malevolently with blood-shot eyes. "That damned partner of yours has gotten away. But we'll get him. Meanwhile you go in solitary confinement."

Bob's fastenings were released. He sat rubbing his numbed wrists and ankles. Two of the guards picked him up; rushed him out, Travis cursing and raving the while. He was carried to the roof, placed in one of the little air craft and was soon speeding away, he knew not whither. A cloth was pressed to his lips; a sickly odor assailed his nostrils. He fought against an overpowering drowsiness; succumbed.

V.

GEORGE crowded more exciting adventure into a few days than he had encountered in his lifetime. When Travis locked him in the second story room, he overlooked the fact that two windows of the roof opened on the roof of the porch. It was thus a simple matter for George to get away. He climbed out over the roof and dropped to the lawn facing the beach. It was still daylight, but so engrossed was Travis in the house, that the escape was not discovered. The grounds were walled on both sides but he waded out into the water and skirted the shore, walking waist deep for nearly a mile. He emerged from the water before a huge building, resembling a power plant of the twentieth century. In place of the usual stacks, three tall steel towers surmounted this building. Each tower was topped with an immense globe of some iridescent material that scintillated and changed color with a peculiar weaving, crawling effect.

The pulsation of machinery within aroused George's interest and he decided to try this place as a refuge. Through a large door he entered, unchallenged, an immense room in which five huge machines throbbed and sang with the note of tremendous power. He advanced along the iron-floored aisle toward a desk at the far end of the room, where sat an engineer, busy poring over his operating records. As George approached he saw with a start the sinister form of a laborer creeping up behind the engineer. He watched horror-stricken as the figure clad in overalls, rose to full height and raised an iron bar above the head of his unsuspecting victim. With instant decision he picked up the nearest object, a heavy wooden bucket, and hurled it at the murderous attacker with accurate aim. Just as the bar started its sweeping downward arc, the bucket struck. Full on the side of the head it crashed, dropping the man like a plummet, the iron bar smashing into the desk at the side of the startled engineer.

"Good God!" he exclaimed, jumping to his feet. "What was that?"

Looking from the bar sunk in the desk top to the inert figure on the floor, he turned to the pale and shaking George with amazement written all over his face.

"It looks as though you saved my life, stranger," he said. "Lucky you came along just then. This oiler has had it in for me for a long time, but I did not dream he would go so far as to attempt murder. I can't thank you enough. Here's my hand."

He gripped the hand of the still white-faced George, looked searchingly at him and grinned engagingly.

"It was nothing, sir. Very fortunate for you that I was in time. But I am an intruder."

"Perfectly all right," was the response, "I am chief here and the place is yours. Anything I can do to show my gratitude is yours for the asking."

The engineer called a number into a peculiar box-like instrument on his desk. Instantly a voice replied, "Yes, chief."

"Come down here right away, Bill," he ordered. "Malino just tried to kill me and was knocked out by a friend of mine. He is just about coming to and I want you to come and get him."

"Right-o!" was the reply. "There in a minute."

The fallen oiler was indeed stirring. He groaned and turned his head, the side of which was bruised and bleeding. He again lapsed into unconsciousness, just as two officers arrived. Roughly turning him about, they examined his wounds.

"Not much hurt, Ed," said one. "Too bad your friend didn't kill him."

They pulled him to his feet, half conscious, and hurried him from the building in a business-like manner.

George was much embarrassed as his new friend turned to him with profuse expressions of gratitude.

"Probably you will not be so glad to know me, sir," he stated, "when I tell you I am a fugitive from the clutches of John Travis. Undoubtedly a search is now being made for me and you will get into trouble for having me here."

"That doesn't worry me. You saved my life, stranger. And the least Ed. Weeks can do to partly repay, is to help you out. What is the trouble?"

"It is a strange story, sir. But, being a technical man yourself, it may not be as incredible to you as it would be to some others. Can we sit somewhere in private, where there will be no interruptions?"

"Certainly. We shall go into my private office when the watch engineer returns. Here he comes now."

The assistant engineer took the seat at the desk, and

the two repaired to the chief's office, where George related his story. At points in the narrative his words were greeted by whistles of astonishment, but when he had finished, there was no expression of doubt.

"I can well believe every word of what you say," the engineer stated. "We still use beam transmission for long distances, though this particular plant radiates its energy in all directions for the use of air craft within a radius of five hundred miles. Besides, I have a very dear friend, my old professor in high tension research, who has done a great deal of experimenting with etheric vibrations, and has produced some astounding results along many different lines. Now, let me think. How can we get you and your friend out of this mess? Travis is a bad man to deal with."

"He seems to be, from what I have seen," said George. "How I wish Bob and I could get back to our own time and to good old New York."

The engineer pondered for a few moments. "I have it!" he exulted finally. "This same professor is now working in his secret laboratory in Mexico. I am sure he will be glad to take you in and hide you for me, until I can see what can be done to straighten things out back here."

He turned toward another of the little black boxes; called a different number in an ordinary tone of voice. A faint whir came from the box; several clicks told of connections being established at some central automatic control station; a voice answered with full room volume. It was the chief's professor friend in his distant retreat.

A few minutes of rapid conversation completed the arrangements. The professor was delighted. He was becoming lonesome and welcomed the coming of another scientific man, hunted by Travis though he might be.

"Well, that much is fixed, Mr. Lesch," said Weeks. "Now to get you there. My speedabout is on the roof and we can be there in about two hours. You know we travel fast nowadays."

It was George's turn to express thanks and he started to do so with enthusiasm. His host would have none of this however, and hustled him to the landing stage. Here they entered one of the small speedy craft and in a moment were headed out over the Gulf.

WHEN Bob awoke his head throbbed unbelievably. He sat erect; found he had been lying on a stone floor. A thin, sickly beam of sunlight struck the damp stone wall directly before him. He looked up; saw that it came through a small, barred opening high overhead. Looking about him, he observed that he was in a tiny cell whose only entrance was a stone door. The sole openings were the one through which the meager light filtered and a similar barred one in the door. He was well caged.

Fortunately he was not bound. He was free to move his muscles; arose and paced the floor like an imprisoned animal. As his head cleared his anger increased. His muscles were stiff and sore but the nervous pacing soon limbered them up. He was fiercely hungry and must have been unconscious for twenty-four hours or more. By the time an attendant appeared with food and drink, he could have hugged him.

The guard entered with the hard bread and water which had evidently been decreed as his only fare. He was a short, broad shouldered man and he looked commiseratingly at Bob, though he fingered a peculiar pistol-shaped weapon at his belt.

"Well, old top," Bob addressed him cheerfully enough. "A fine mess I got into."

The guard set down his tray; pointed meaningly at his own mouth and ears. He was a deaf mute! Not even a human being for Bob to talk with! The man left silently, bolting the heavy door behind him. Bob sat down to his unappetizing but badly needed repast.

He broke the small loaf of black bread and, as he bit into one end of it, his teeth encountered a paper. This he extracted and unfolded wonderingly. On it were written three words, "Have courage—Eileen."

"God bless the girl," he whispered and tucked the crumpled paper inside his shirt. "There is a woman to love; to be proud of. Guess I haven't lived in vain at that. That is, if I can ever get out of here and away."

He fell to soliloquizing as he ate; to dreaming. Hope was not gone. But what had become of poor old George?

Several hours he spent weaving golden fancies. Then, as hunger again assailed him, a reaction took place. His spirits sank and his thoughts became gloomy. His hopes seemed so impossible of attainment. Here he was imprisoned in a foul, musty cell. And by a ruthless, insane enemy! What chance could the beautiful Eileen have against her father and his minions? Poor George had probably been captured by now, too. And who knew but what the fiends might do away with him? What sort of an age was this anyhow? Bob had, in his own time, thought of the future as a time of idealistic life, of complete understanding between all peoples, of true collective governments and the complete equality and happiness of all mankind. But this city—Sanscare—the great world resort, with all kinds of excesses rampant, with the elite of the entire earth gamboling and gambling, was a hotbed of viciousness. Its government was evidently run on the principles of Big Business, of one of the great heartless corporations of his own time—with the impossible Travis as its head. Eileen was the one bright oasis in this desert of disillusionment.

His unpleasant thoughts were interrupted by the entrance of the deaf mute, who again set a tray of food before him. With a smile and a nod Bob thanked him and once more started on the black bread and water. This loaf was much larger than the first, for which he was thankful. His hunger was almost painful. He broke the loaf; found inside a small package. When he unwrapped this, it revealed a black metal box, the size of a cigarette case. He examined it curiously. It was of the perfectly smooth metal, with the exception of a two inch circle on its face which was of a glistening, speckled, coppery colored material. While he wondered as to its use, thinking it might be an infernal machine intended for his destruction, he was startled by a voice issuing from it with full speaking strength. It was the voice of Eileen! So surprised was he, that he dropped the contrivance. Still the voice kept on:

"Bob—Bob," it repeated, "answer me at once so I will know you are safe."

"I'm all right dear," he replied, feeling as if he were talking to himself. "But what is this you have done?"

The mellow voice of the girl continued: "I managed to bribe the warden and he agreed to get my message and the etherphone to you in your food. It is so good to hear your voice again."

"Yours is as marvelous as ever," he replied. "But it did startle me at first. You know I never saw one of these remarkable instruments before. How long have I been in this cell?"

"Don't you know, Bob?" she answered in surprise. "Let me see. It will be three days to-night."

"Is that possible? Why, I only recovered my senses about ten hours ago. They must have used a powerful drug on me."

"Oh, that is terrible! You poor boy. Did it make you ill?"

"A little, when I awoke. But I am fine now. Are you all right yourself?"

"Yes dear," came the reply, "but father is in a terrible state. He has the entire secret service hunting for your friend George. He knows he has you safe—or thinks he has—and is spending all his time in the hunt for poor George. Little does he know that I have located him."

"You have? Why, that's great. Where is he?"

"Safely hidden in Mexico. And he says he has hopes of getting you both out of this trouble. What he means by that I do not know, but I have talked with him and he seems much excited over it. Meanwhile I am making plans to get you out of your cell and to Mexico to join him. By to-morrow it should all be arranged."

"Eileen, you are a wonder," exclaimed Bob. "How on earth did you do it?"

"Hush, Bob dear," she replied. "Your voice here carries like a shout. Father is out now but if he should come in unexpectedly and hear the voices in my rooms, all would be lost. We will talk no more now, but you can expect a call from me almost any time as things develop. Good night, Bob."

"Good night, Eileen."

The room was still.

Bob turned the little instrument over in his hand; set it carefully on the floor by his ear as he padded his coat for a pillow and stretched out on the hard, moist stone for a period of sleep. It was now dark as midnight and he was very tired. Strangely enough, for his mind was a chaos of hopes and fears, he fell asleep at once.

VI.

HOW long Bob slept he had no means of knowing, but he was electrified into wakefulness when he heard his name called by Eileen's voice, which sounded panicky now.

"Yes, dear," he answered with a tightening of his throat muscles.

"There is no time to lose," she replied with a suggestion of hysteria, "Father knows. But I will get to you myself. Be ready. And don't be surprised at anything that happens."

"All right," he replied, but the instrument was dead. There was no reply.

Again Bob resumed his nervous pacing of the cell floor. And in the darkness, he came into painful contact with the walls several times. What had happened to Eileen. As time passed and all remained quiet, his fears increased—fears for her. Finally, getting himself in hand, he found the iron bars of the little opening in the door, clutched them and waited, listening with bated breath.

Soon there came the flickering of a dim light, showing in the corridor through the bars of the narrow aperture. Then the padding of soft-shod feet. A choking cry, immediately shut off—a sobbing indrawn breath just outside. The light disappeared. All was silent for a moment and Bob's heart pounded so violently, he feared it would be heard. Then the jangle of keys; the snapping on of the light. A soft, familiar voice spoke with trembling accents:

"It is I, Bob. Oh dear, I am afraid I have killed the guard. But I will have you out at once."

The key turned in the lock. He heard the bolts withdrawn. The heavy stone door slowly opened and Eileen fell into his arms, dropping the hand light to the floor as she tottered.

"Oh, my dear," groaned Bob, as he held her limp form on one arm and reached for the light with his free hand. "What has happened to you now? You poor girl!"

Flashing the light full on the sweet, pale face, he saw that she was already recovering. He breathed a sigh of relief as she straightened up—stood erect.

"I am so ashamed, Bob," she said, "of my weakness. And I am afraid I killed the jailer. But we must leave at once."

As they passed down the corridor, Bob turned the light on the face of the fallen guard; knelt and felt of his pulse.

"No dear. You didn't kill him," he said in awe at the girl's courage, "He'll come around presently. The heart is working fine."

He unwound from the man's neck the silk scarf with which the brave girl had choked him into insensibility.

"You're a brick, Eileen," he said as he grasped her hand and followed her through the passage.

"Turn off the light dear," she whispered, when they had traversed several winding halls. "We are near the warden's office. I chloroformed him but he may be recovering by this time."

Bob did as directed and followed his guide unquestioningly. Not a sound did they make as they passed through a large room with several windows through which came the faint light of the waning moon. In his chair sat the warden, still under the influence of the anaesthetic, but beginning to stir. A few steps more and they were in the open air.

In a broad open court just inside the prison wall, stood Eileen's speedabout and the two clambered into it at once. She grasped the controls just as a beam of glaring light from above lit up the front of the forbidding gray stone structure, searched the grounds and found them.

"That is father in a police ship," Eileen lamented. "Now we are in for it."

The tiny craft shot skyward like an arrow, out of range of the dazzling light. Up, up they rose at terrific speed until the decreasing air density made breathing difficult. The ray of light from the police ship searched the skies, found them again. The girl dropped the little speedabout with a jerk, spun it about and dove straight for the earth far below. Again the powerful light lost them. Their craft flattened out, headed in a westerly direction and Eileen gave it all the speed of which it was capable. Not a word was spoken by either as they sped through the darkness with all lights on their ship extinguished.

On and on they drove with the great light from Travis' ship scouring the sky for them. Time and again the light found them and the pursuing craft gained. Each time, by skillful maneuvering, Eileen managed to elude the light and regain the lost ground.

FOR nearly an hour there was no trace of their pursuers. The sky was taking on a lighter hue; the stars disappearing. Behind them in the east showed the faint pink of approaching dawn. Suddenly, as with the raising of a curtain, the waters of the Gulf became distinctly visible below—the shore line loomed up directly ahead. Soon they made out the mouth of the Rio Grande—they had traveled nearly a thousand miles in less than two hours. Consulting her chart, Eileen made a change in the compass setting as Bob watched in wonder at her expertness. Their course changed slightly as they passed over Brownsville, in Texas, headed toward Cadereyta, across the frontier.

The skies were deserted. The world had not yet awakened. No trace of the police ship could be seen.

"It's a lucky thing that father did not learn where George is," said Eileen happily. "He learned only of my plans to free you. The warden repented and told."

"I can only repeat that you are a wonder, Eileen," replied Bob. "How much farther is it?"

"Only a few minutes now, dear. See, there are the peaks of the Sierra Madre Oriental just ahead. It is in those mountains that George is hidden."

She consulted her chart again, turned southward as they gained altitude to rise over the first range of hills. When they had reached a point over a densely wooded section, Eileen called for George in one of the little etherphones. His reply came almost at once.

"George," she said, "I believe we are about overhead now. Give us the signals so we can land."

"Right, Miss Travis," came the reply. "Watch for two white flags and drop between them. Just a moment."

They descended slowly and soon made out two tiny figures in a small clearing, waving the snowy signal flags. Just as their craft was maneuvered immediately above and the descent commenced, George's voice came again from the etherphone, excitedly now:

"My God, we are discovered," he screamed. "A police ship is dropping from just above you."

Bob looked up. It was so indeed. The wily Travis had guessed their approximate destination and had followed high above—so high that they had not been able to see his ship. With the coming of the dawn, it had been simple for the larger and faster craft to follow them with the aid of powerful glasses.

Eileen bit her lip, choked back a sob. There was but one thing to do. They could not get away now, so she landed in the clearing. They were met by the excited George and a tall, straight, gray-bearded man, who was evidently the professor who had sheltered him.

"WELL, the game is up I guess," George moaned. "And I had it all fixed for our getaway. But what can we do? Here they are."

The police ship was only fifty feet above now and dropped into the clearing before they could even get into the woods. Three men climbed out; Travis and two officers. The fugitives were covered by weapons in the hands of the two policemen.

Travis laughed; cackled in maniacal glee. It was a horrible sound. It rang through the wood and echoed from the surrounding crags in fiendish triumph.

"Now I've got you," he screeched, "All of you. Bind them, men, Even my daughter. This is one time a prophecy fails."

Again he shook with insane laughter. Eileen covered her eyes and wept.

The two husky police advanced with raised weapons. Bob set himself for a conflict as he saw that the old professor had, unobserved, slipped into the woods and was even now coming out behind one of the officers with a heavy gnarled branch in his hand. George remained perfectly still, watching the gloating Travis. Eileen sobbed, and the sound of her sorrow filled Bob with rage—gave him superhuman strength.

From the corner of his eye Bob saw the old professor raise his club. Just as the old man struck the weapon from the hand of the man he had picked, Bob sprang for the other, grasped his wrist just as his weapon was discharged. There was a terrific detonation in the wood nearby—a tree top came crashing to the ground. The explosive bullet intended for Bob had done its work elsewhere. With a tremendous twist, the weapon was wrenched from his opponent's hand and thrown into the woods, just as Bob saw that the other officer was grappling with the old man in unequal contest. Travis yelled in fury but had no weapon. He started for Bob, to help his assailant. At this George rushed into the fray.

"Don't hurt father," screamed Eileen and fell in a swoon.

George, though small, was heavily built and tremendously strong in his long, hairy arms. He grappled with Travis, flung him to the ground, and there held him, despite his struggles.

Meanwhile Bob was fighting the battle of his life. His assailant was taller; heavier; but Bob was the better boxer and was imbued with the strength of righteous anger. Time and again his opponent waded in, only to be met by terrible body punches that rocked him and sent him back grunting. Bob was reaching for the chin but was blocked several times. His own guard weakened for a moment; his opponent got in a terrific punch to the head that dazed him.

Just then George yelled from the ground, where he still struggled with Travis, "Look out behind, Bob."

The second officer had felled the old professor and was coming to the aid of his fellow. Travis raved and cursed; he was foaming at the mouth now.

As his first assailant came in with a grin of triumph, Bob, with a superhuman effort, swung out, this time straight for the point of the jaw. There was a crack like a pistol shot and one of his enemies was down—for some time too, by the looks of his crumpled form. The second was on Bob's back, pinioning his arms to his side. He was helpless and, strain as he would, he could not unlock those powerful arms. Slowly but surely his panting antagonist bent his body backward in an old wrestling trick. He meant to break his back. Bob felt his bones give—lost hope.

Eileen was recovering from her swoon, sat up weakly. Dazedly she saw George and her father struggling on the ground; saw the old professor and one officer stretched out lifeless; saw Bob's predicament.

She crawled toward the two straining men; reached them just as Bob closed his eyes in anticipation of the snap that would mean his end. He was powerless; paralyzed in that grip. Suddenly he was jerked backward, falling heavily on the body of his enemy. In the shock of the fall the terrible hold was broken. Bob was on his feet again like a cat, and whirled about to face his man. Clever, brave little Eileen had tripped the man by pulling one of his feet from under him.

This man was no mean fighter either, as Bob quickly learned. He was on his feet almost as soon as Bob was, and rushed at him furiously. Blow after blow was exchanged with lightning rapidity. At each rush the officer attempted to clinch but Bob evaded those crushing arms, getting in some heavy blows at each evasion. His face was bleeding now; one eye was nearly closed. He saw Eileen struggling to her feet and became suddenly invincible. He crouched, sprang, rushed again and again for his man, staggering him with hammering blows to body and head. The rushes of the other were getting fewer, weaker. Then came his last dash—straight into one of those left hooks of Bob's that had made him the master of many a tough construction gang. The battle was over!

Travis had ceased struggling; watched this fight with narrowed eyes. When he saw his second minion go down, he renewed his own struggles with increased vigor; got away from the encircling arms; crawled to his knees. He was on his feet and, eluding the amazed George, rushed at Eileen, who stood trembling with excitement.

"At least you'll never get her," the father babbled. "I'll kill her first."

Bob started for him with a horrified cry. But it

was unnecessary. The man was overcome by his own emotions. He stopped short; clutched for his throat; screamed and screamed like an animal in its death throes. His face purpled horribly; his eyes popped from his head. Eileen rushed to his side.

"The vengeance of long ago," he gurgled. "It's got me. I'm done. Sorry Eileen—sorry—not been myself—"

He dropped in his tracks, lay motionless. Eileen fell to her knees, bent over the dead body.

"Poor, poor father," she wept. "It was not his fault. He would never have harmed a hair of my head had he been in his right mind. Nor of any of you."

Respectfully they left her to her sorrow and turned to the three men stretched out in the grass. The old professor was stirring, groaning.

"Thank God, he's alive," said George and rushed to his side as Bob turned to the first of the prostrate officers.

BOTH were still unconscious and were not pleasant to look at. With their own handcuffs, Bob manacled them together; then he went to help George with the professor. The old man had been stunned but was not badly hurt. He sat up shortly and said he would be all right in a few minutes. George was wild with joy—he admired his new friend greatly, as only one scientific mind can admire a greater one. Some bad bruises the professor had, and a cut lip. Otherwise he was unharmed. Soon he got to his feet and was introduced to Bob. With the tension relieved, George took his first good look at the battered victor.

"Well if you aren't a sight," he laughed. "You should see yourself in a mirror. Your face dosn't look like a face at all. But we'll soon fix that up."

Bob grinned. "Guess I am a little banged up at that," he said, "I can hardly move my jaws. But it was a great fight."

"Great fight!" echoed George. "It was a masterpiece, Bob. And you saved the day."

By now the officers had recovered and were arguing with each other as to whose fault it was.

Bob went to Eileen at once and found that she had somewhat regained her composure. Great tears filled her eyes as she arose from her father's side and came to Bob's arms. His battered face meant nothing to her.

"Perhaps it was better so, Bob dear," she said as she buried her head in his shoulder. "Poor father. He could never have recovered, and he was in constant misery. I did love him though and I know he loved me. It seems unjust, too, that he should have to pay the penalty for the misdeeds of another."

"I can't comfort you, darling," replied Bob as he stroked the tumbled, gleaming golden hair. "But I love you and can take care of you and keep you from any more unhappiness. Am I too bold if I ask you to depend on me from now on—If I ask you—to—to be my wife?"

She raised her trembling lips to be kissed. "I love you too," she said. "The remaining and happy part of the old prophecy shall be fulfilled."

Bob had held his breath for the answer. Now he sighed with content as he held the beloved form to him for a long, happy moment.

VII.

NEXT day Travis was buried in a beautiful little glade not far from the scene of his death. Eileen, still grief-stricken, looked entirely to Bob for comfort and he gave it as best he could. The old professor had completely recovered from his strenuous and unwonted experience. The two police officers, still manacled, took their capture stoically enough, after they learned of Travis' demise.

"Now," said George gleefully to Bob and Eileen as they all sat with the professor on the porch of his little cottage facing the laboratory, "let me tell you what I've done with the professor's aid since I've been with him. Not only are our troubles over here, but we can return to our own age at any time we wish. You and I, that is, Bob."

He looked slyly at Eileen when he finished.

"Wherever Bob goes, I go," she said firmly.

Bob looked at her with adoration in his eyes. Then turning to George he asked in surprise, "Are you certain, old man?"

"Absolutely," was the reply. "You have not seen the inside of that laboratory yet, but when you do, you will be astonished at the similarity of Professor Graham's equipment to the apparatus we have constructed. Why, Bob, it was wonderful. I came here without the slightest hope of ever getting back; but I soon found that, with only a few modifications to some equipment in the laboratory, we could make a combined 'YZ' beam transmitter just like the one that brought us here. It meant only some reassembling of available parts and providing for the proper impulse frequencies. See the projector on top of the building?"

Bob turned in the direction indicated and saw for the first time a carefully constructed replica of the projector back there in New York. "Well, I'll be blowed," he ejaculated. "Where in the world did you get that?"

"That was the easiest part of all," George chortled. "Our friend had that stored away. He had used it in research with other types of beams and it only required the addition of a couple of elements to adapt it to our use. Come, let's go to the laboratory. I'll show you."

The dignified old professor was silent during this discourse, but became talkative while they walked toward his workshop, a small frame building a little way up the hill from the cottage.

"This George is a marvel," he commented in an aside to Bob. "His memory is amazing. And he is a mathematician of the first water. His story seemed almost impossible at first, though I have done some weird things in my own research—completely changing cell structures of living creatures and so on. What I can not understand is why this invention of Graham's in your time has not been handed down to posterity. Possibly it was suppressed by the government as being too dangerous to ever make known to the world."

The old man shook his head as if in disapproval of such a course.

"That is a thought," replied Bob. "Now I wonder just what did happen. At any rate, we'll soon know."

They had entered the building, on the roof of which was mounted the projector. Bob was startled at sight of the transmitter they had built. It almost seemed that he was again in Graham's laboratory. True, some of the instruments were more or less crude adaptations of similar mechanisms, but for the most part it bore a striking resemblance to the original apparatus. George showed off their handiwork with pride.

"I can hardly wait to get back," he said. "How about you, Bob?"

"That depends on Eileen," said Bob, looking at her.

"Oh, Bob," she said. "If this machine will really take us all back to your own time and to the place you came from, why not go at once? Everything has been so terrible here that I shall be glad to get away from all of it, from everything that reminds me of it."

"Good for you dear," he said, taking her hand.

GEORGE beamed at the decision. "Let's go this minute," he said. "How about it, Professor? Is everything ready?"

"Yes, George. All except setting the day and hour controls," was the slow reply. "You know you already had the distance, direction and calendar settings made. But I do hate to see you leave."

"I hate to leave you too, Professor," said George, grasping his wrinkled hand, "and I can't thank you enough for what you have done for us all."

Eileen and Bob were in close conversation. They had agreed that there was nothing to hold them and were both for an immediate start.

Arrangements were quickly made. George set the controls to return them to the old laboratory in New York at a time just a half hour later than that which had been originally set for their return. The exact location he had computed as a point in the field just beside Graham's laboratory, since he did not believe it possible to set the location accurately enough to deposit them safely on the original transmitting platform. Grateful farewells of the professor were taken, and he agreed to set the police officers free and allow them to return to Sanscare as soon as the transmitter had operated.

Bob and Eileen mounted the transmitting platform as George busied himself with the final adjustment and took his last leave of the scientist of 2132. This done, he joined the two lovers on the platform.

"All ready, Professor," George directed as he saw that the other two were properly located. Indeed they were very close together, gazing into each other's eyes. George chuckled as he drew close to them and clasped each about the waist without their even betraying knowledge of his presence. "Let's go," he finished.

"Farewell folks," said the professor with a catch in his voice. He pulled the switch without awaiting their replies.

"Good-bye!" the three shouted as one voice, just when the blinding purple glare appeared.

SLOWLY, almost painfully, Bob returned to consciousness. Expecting to find himself on the transmitting platform in Professor Graham's laboratory, his first surprised impression was that he was prone, in a comfortable bed, and very badly tangled in the bed-clothes. He sat up with a start as he realized that something had gone wrong, that a bell nearby was ringing, furiously and persistently. Here he was in his room at the Waldorf, just as he had been when awakened by the call from the professor. Dazedly he reached for the telephone instrument; still semi-conscious, he answered it.

"Hello, hello!" came a masculine voice which he did not at once recognize. "Are you going to sleep all day, old man?"

"Hello," he answered, not too graciously. "Who is this speaking?"

"Now you listen to me, Bob Wright," came the voice from the receiver. "And don't try to high-hat me either. I have been ringing you for ten minutes and you know darn well who it is, too. This is Jack Hemingway, you old fakir and I have some wonderful news for you. How soon can you be down in the lobby?"

"Why, Jack old man, I'm sorry. I was still half asleep when I answered. I'll be down in twenty minutes. But what is the good news?"

"Thought that would wake you up. And it'll waken you more too, when you hear it. But you aren't going to hear a word until you get down here. Make it snappy, now."

There was a click and his friend was gone. Bob looked around the room, taking in the familiar and yet unfamiliar surroundings. He dragged his thoughts back to earth. So it was all a dream—*Sanscare*—Eileen—everything. Well, he thought bitterly, what could he expect? It had always been this way where Eileen was concerned. But the dream had been so vivid—so real! And what a hero he had made of himself in this dream! He became so disgusted that, as he picked up his watch and saw that it was nearly ten o'clock, he petulantly tossed the valuable timepiece to the floor, where it lay, with shattered crystal, gazing accusingly at him from the corner of the room.

Still he could not get the pictures of his remarkable dream from his mind—George—the old professor in his Mexican retreat—the farewell from the forest laboratory.

"Damn!" he said aloud, as he rushed for his shower. "Of all the triple-dyed, blasted fools on the face of this earth, I am the most highly colored. Professor Graham, indeed! Why, the simplest fool in the country knows that actual physical travel to and from the future is as impossible as perpetual motion. But—I believed it all in my stupor. Should have known that the clams and the cocktails wouldn't mix last night."

He felt much better as he emerged from the stinging needle-jets of the shower and was almost on the point of whistling as he inserted a new blade in his razor. Then the vision of Eileen intruded once more. He again became morose as he scraped valiantly at his more than usually stubborn beard. Twice he cut his chin and when he finally completed his toilet, he was in no mood for a meeting with his old friend, or with an enemy either.

Ten minutes later, perfectly groomed, Bob left the elevator and walked across the lobby to the newsstand. He presented a face that for sheer despondence and dissatisfaction with the world would have scared off anyone but John Randolph Hemingway. That irrepressible gentleman, after one look at the figure of his friend striding jerkily toward the depleted supply of morning papers, jumped from the chair he occupied and rushed to Bob's side.

"If you aren't a sight for sore eyes," he laughed, as he grabbed his friend unceremoniously by the sleeve and swung him around. "Why the grouch this morning? And aren't you glad to see your little Jackie? Haven't seen you since that last South-American job of yours and, believe me, I have been following your movements all over the world."

Bob softened at sight of the ruddy, smiling countenance of his old college chum and, shaking himself out of his black mood, grasped the outthrust hand gleefully and wrung it as though it were his last hold to earthly friendships.

"Jack," he apologized, "I'm sorry—more than I can tell you. And I am glad to see you. I suppose you have had your breakfast already, but I haven't, and if you can put up with a grouchy old bachelor like myself for a while, come on into the dining room with me and keep me company while I satisfy the cravings of the inner man."

"Now you're talking," said his friend. "As a matter of fact, I haven't breakfasted yet, either. So I'll let you buy it for me."

Bob's humor restored, the two walked arm in arm to a secluded table and set about ordering their morning meal.

Jack could hardly restrain himself while Bob gave their orders to the waiter. He was bubbling over with excitement and could scarcely keep to his seat. When the waiter had silently left for the kitchen he grasped his friend's hand where it lay on the white cloth and, for the first time since meeting him, spoke seriously.

"Bob," he asked. "What would you rather have than anything else in the world?"

Startled, Bob gazed solemnly at his friend. His mind was still in the far-off future and in the dream city, *Sanscare*.

"Why do you ask me that?" he countered, absent-mindedly.

"Well," his friend replied. "Maybe—mind you, I say maybe—your wish is going to come true."

"Oh, come on now Jack, you know better than anyone else that there is only one thing that has bothered me these past few years—only one thing that has kept me chasing all over this world of ours. Don't fool me. And I had a dream—such a dream!"

"I'm not kidding you, Bob," his friend said, very seriously now. "All I ask of you is to wait here for about two minutes while I make a telephone call and when I return I think I'll have a surprise for you."

"All right, I won't move," said Bob, again in his reverie and paying little attention to his friend's words.

Quietly Jack left the table, so quietly that Bob scarcely missed him as he lived over again in his mind the high spots of his remarkable dream. Once more he was in the stone cell where he had been thrown by the minions of John Travis. Once more he heard the soft voice of Eileen as it issued from the strange instrument she had smuggled to him in his cell. He slipped so completely into vivid re-picturings of that dream that he forgot his surroundings entirely.

"Bob," spoke that soft voice. "Bob dear, can't you even say 'Good morning' to me?"

He held his breath for a moment—gazed fixedly at the table-cloth, at the beautifully polished silver that graced his plate. He was not in *Sanscare*, but at his table in the Waldorf. Mentally he cursed himself—he had been dreaming again. Then his eyes traveled slowly upward and he jumped to his feet in astonishment.

There stood Eileen Cummings—his Eileen—in the flesh. He was not dreaming now, for at the side of the vision in white stood Jack Hemingway—grinning like a Chesshire cat.

"Why—why—Eileen," Bob stuttered, "What are you doing here? I'm awfully glad to see you really. Won't you have a seat?" He bowed stiffly, as he arose from his chair.

Her laugh tinkled as merrily as had that of the Eileen of his dream. And, as she gracefully sank into the chair which he drew back for her, he slumped almost sheepishly into his own. Still Jack Hemingway looked on with that infernal grin of his.

"Why Bob," spoke the girl, as she threw back her coat and faced him across the table. "What ever is wrong? You look as if you had seen a ghost."

And her description fitted him exactly. His bronzed face had taken on the color of putty. He gulped and looked at her, with the lump in his throat still unswallowed.

"Eileen," he said huskily. "Where is your husband?"

Again came the tinkling laugh, but it broke short with a half-sob. "Bob dear," she said, "there never was any husband. And there never will be, unless it is you."

"But—but, Eileen," Bob was stammering again now, "Bert Travis. Your father said—"

"Yes, I know he said it, dear. But I never did. And I have been looking for you for six years." The girl was frankly in tears. "And, oh! Bob," she continued. "I have been so miserable."

Unbelievingly, Bob looked at her. Childishly he pinched himself to see if he was awake. Then the dignified patrons of the hotel dining room—fortunately few in number at this hour—witnessed a scene that they are still talking about. For Bob, the impetuous, with his dream still in his mind, with his six years of disappointment still unforgotten, could not be restrained. And Jack—good old Jack—stood by with his grin transfixed, but with tears in his eyes and with joy in his heart as his two friends re-plighted their troth in no uncertain terms and with demonstrations that could not be misunderstood.

The End.

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EXPERIMENTER PUBLISHING COMPANY, Inc., 230 Fifth Avenue, New York

The EVOLUTIONARY MONSTROSITY

By Clare Winger Harris

Author of "The Menace of Mars," "The Miracle of the Lily," etc.

I.

"I BELIEVE you three fellows are going to startle the world yet," Professor Lewis of the Biology department of our college remarked when we three students, who had termed ourselves the triumvirate, gathered in the laboratory at the close of class. "Marston, what was that theory of evolution you hinted at just before the bell rang? It sounded interesting."

Ted Marston laughed in a slightly embarrassed manner, though modesty was not ordinarily an outstanding attribute of Ted's character. His environment, judging from the little information we were able to glean from time to time, had been one of poverty and squalor. He was working his way through college and had proved a credit to that institution.

"Oh, it's a little far-fetched, professor, and I'm afraid my two high-brow pals here will think I'm cuckoo," and he tapped his head significantly, "but the idea's been grinding away in my brain for several days now."

"Out with it, Ted," said Irwin Staley jocosely. "Remember this triumvirate holds no secrets from itself. All thoughts are shared."

Irwin was the son of a wealthy New York broker and had been raised with every luxury that the modern age was capable of producing. His was a brilliant mind too, but it somehow lacked the initiative that necessity had instilled into the being of Theodore Marston.

"Well if you insist," replied Ted more seriously, "It's something like this. I wonder if evolution isn't the result of a certain bacterial growth which slowly and continuously changes the cellular structure of living organisms, causing the formation of new tissue and organs, and breaking down the old."

"Poppycock and fiddlesticks!" ejaculated Professor Lewis. "Environment must also play a part in evolutionary change, for evolution is adaptability to environment, and Darwin was right in his theory of the survival of the fittest."

I'll admit I was dumbfounded by Marston's assertion, but not so Irwin Staley.

"Ted," he cried with enthusiasm, "you've got the right dope. It sounds so reasonable. But can you prove it?"

"I sure will," he answered, "if only for the satisfaction of convincing these doubting Thomases," indicating the professor and myself, who looked our incredulity.

"The only way you can prove it," I said, "is to develop specimens more rapidly than environment could possibly change them."

"That is precisely what I intend to do," he said.

AGAIN, our well known author, Mrs. Harris, steps to the front with a gem of a story which proves her versatility as a writer of scientifiction. What is evolution? and how does it all come about? And how long does it take a race to evolve? All difficult questions to answer in a short paragraph. But there are many who believe that it is possible to speed up evolution. We do it experimentally with the lower animals and insects, and there is no doubt that sooner or later we can do it with human beings. When that time comes, it will be a most interesting adventure for us humans, but we do hope, for the good of humanity, that it will not be along the lines as expressed in the present story.

However, do not forget that dynamite can be used for killing people and for peaceful endeavors as well.

II.

I, FRANK CALDWELL, could boast of no extremes either in environment or hereditary. My people were middle class, my father being a factory owner in a small town in Iowa. My collegiate rank was slightly above the average, though I showed a decided preference for Biology, in which study my two friends excelled.

Following graduation I became Professor Lewis' assistant, after the position had been refused by Marston. It seems the enthusiasm which Ted Marston felt had been shared, as I feared, by Irwin Staley, who placed at his chum's disposal, ample funds for the purpose of developing his theory of evolution. Thus the "triumvirate" dwindled temporarily to two, while I, troubled with no new, fanciful ideas, taught my classes with no inkling of what was to come.

One warm day in June at the close of the school year, I received a letter from Ted and Irwin who were at the latter's specially equipped laboratory, endeavoring to carry out Ted's great scheme for proving to the world the primary causes of evolutionary changes in mankind.

The letter ran as follows:

"Dear Frank,

A meeting of the triumvirate is called for the first possible moment you can get here. We want you in on this. We are in a position to convince you whether you will or no! You can be of real assistance to us in the carrying out of our plans. Don't delay.

TED AND IRWIN."

I had vaguely planned a European trip for the summer, but adandoned the rather hazy idea upon receipt of my friends' letter. My curiosity was unquestionably aroused. Had the two succeeded in isolating the "evolution germ" and in putting their theory to a test? It seemed incredible and yet strange things have happened.

Wonderingly, and not wholly without excitement, I

When I realized that the thing was regarding me with those staring, expressionless eyes, I tried to summon what little dignity I could —I sensed that the repulsive form housed an exceptional intelligence. But I had never undertaken a more difficult task, and I was thankful for the moment that I was not standing in front of my Biology classes at the University.

presented myself at the Staley mansion, which stood secluded in the center of a twenty acre estate. I was surprised to have the door opened, not by a servant, but by Mrs. Staley herself, and I could tell at once by her manner that something was the matter.

Irwin had always been proud of his mother, and justifiably so, for she was a woman of keen intellect and young in appearance for her years. She was obviously nervous as she bade me be seated for a moment, before going out to the laboratory on the rear of the estate. We exchanged a few pleasantries, but I felt that she wanted to approach me upon what was a vital subject to her, but that she lacked the courage to do so. I finally decided to "break the ice" myself.

"How are Irwin and Ted getting along with their experiments?" I asked. I knew the subject had to be broached, painful though it was.

She looked away with a quick, nervous movement that had something of fear in it, then she seemed to gain control of herself.

"Frank," she said earnestly, "can't you stop them? It is my opinion they are guilty of great desecration. One can not so distort God's laws without evil results.

At once my old habit of defending my friends came to the front.

"But is it distortion?" I countered. "They are breaking no natural laws. They are merely speeding them up. Where would we be to-day, Mrs. Staley, had we failed to speed up and control the use of electricity? Left to its natural manifestations, it would not turn the wheels of our machinery nor send our voices to remote parts of the world."

"Well, I do not know," she said miserably, "but I can not feel that it is right."

Suddenly she stiffened and gave vent to a muffled scream. "It is coming. I can feel it near!"

Before I had time to question her meaning, I felt rather than saw, a malign presence in the room. I turned from the woman who was now frightened into speechlessness to gaze down into a pair of evil eyes a few inches above the floor.

"My God, what is it?" I cried, sharing her terror in spite of myself.

My fright seemed to cause her to find voice, and she replied, scarcely above a whisper. "It was once my beautiful tabby cat, Cutey."

"Cutey!" I gasped. "What a name for *that!*"

I HAVE always been very fond of cats, and at one time was nick-named "old maid" because of the fondness I showed for the species. But this unnamable horror! It stood upright on two clumsily padded feet. Furless, its flesh the color of a decaying corpse, it seemed to me a miniature ghoul. The lidless eyes stared up into mine with an implacable hatred. But it was what I presume had once been whiskers that held my half reluctant, half fascinated attention. They bristled separately as though imbued with individual volition.

Suddenly a shrill whining voice spoke and I forced my eyes whence it came. It issued from the tiny, malformed object on the rug; from the travesty on feline beauty as we know it.

"You are wanted in the laboratory. Come at once."

Yes, that hairless, furless object, no bigger than a mouse, that stood on two feet and gazed at me with deep malevolence, had issued a command, and I could do nought but obey!

I turned to Mrs. Staley, but she was sitting with her head buried in her arms, so I silently left her and followed "Cutey" from the room.

As I entered the reception hall I heard the approach of a light footfall. I must have jumped unknowingly for my nerves were ajangle after the experience of the last few minutes, and a peal of merry laughter tore my eyes from Cutey.

A girl was standing at the foot of the stairs regarding me with a quizzical smile. My first impression of her was that she was beautifully and expensively clothed, and I am not a man who ordinarily observes clothes before people. In this particular instance, however, the clothes really possessed more personality than their wearer. The girl was pretty in an insipid, baby-doll way. I knew at once that she was Irwin's sister for she was a feminine counterpart of her brother, minus Irwin's rather attractive personality.

"Isn't Cutey a dear?" she asked with a giggle.

"I don't quite agree with you—er—Miss Staley?" I asked stepping toward her.

"Yes, I'm Irwin's kid sister and I suppose you're Frank Caldwell. Irwin's mentioned you so often. But I don't see why you don't like Cutey. She's quite intelligent, you know."

"Ye—es, I don't dispute that Miss Staley, but she seems to lack some necessary qualities to make her attractive," I said, and to myself I thought, 'and so does a certain young lady!'

"Your mother seems genuinely distressed over this evolution business, Miss Staley, and well she may be. I think it has gone too far," I continued.

"Gone too far!" she echoed. "Why it's only just begun, and by the way, call me Dot and I'll call you Frank. It's easier."

"Why what else have Irwin and Ted done along this line?" I asked, ignoring her remark.

"It isn't Irwin," she corrected. "It's Ted," and at the mention of the latter's name she smiled simperingly, I suppose to give me the impression that there was an understanding between them.

"Well he's welcome to her," I thought. Aloud I said, "It seems to me your mother's feelings should be considered in this matter and I know she disapproves."

"Oh mother's so fussy," she replied as she tripped to the full-length mirror and surveyed herself critically but with very evident ultimate approval. "Ted is really doing something wonderful for humanity, you know. At least that's what he says, and I like to believe him."

Suddenly I looked toward Cutey, my gaze drawn in that direction involuntarily. The round, blinkless eyes of the cat (if I can call it such) were regarding me with impelling magnetism, and all the long whiskers were pointed toward me. With a brief "good bye" to Dorothy Staley, I opened the door and followed the feline horror into the open. As I shut the door behind me, I heard Mrs. Staley call her daughter to her.

III.

"IF I could but kill it!" I thought as I followed the thing along the flower-bordered path. "Is it a representation of the future? God forbid the development of such life upon this globe! It would seem that the evolutionary processes minus the modification of environmental influences point toward retrogression instead of progress. Man dare not tamper with God's plan of a general, slow uplift for all humanity."

At length the laboratory appeared ahead of me and I hurried toward it, with something of joy at the prospect of meeting my old chums once more. Forgotten for the moment was the diminutive horror that had once been a cat, as I eagerly grasped a hand of Ted and of Irwin who drew me into the building with many expressions of cordiality.

"Quite some work-shop, eh?" queried Ted with an air of pardonable pride.

"Indeed it is," I replied fervently. "I wish the college had half the equipment you've got here."

Irwin's brow puckered into a little frown. "I have neglected dear old Alma Mater. They would appreciate some more paraphernalia there, w o u l d n ' t they, Frank?"

"Indeed they would," I echoed heartily. "The department's running down, and poor Professor Lewis is about at his rope's end."

It was now Marston whose brow clouded, but not with remorse.

"Lay off the sentimental Alma Mater stuff, Irwin," he said. "They've got enough equipment there to educate the mediocre college boy. Your money and energy can do more good here."

I was not a little shocked at Ted's depreciative words; he who had always been such a loyal alumnus of the university! It displeased me to find none of the former joviality and loyalty that had characterized him in college days.

It was on the tip of my tongue to voice a protest against the preferable equipage of a private laboratory over that of a public institution, but on Irwin's account I stayed the impulse.

"Well," I said finally, in well controlled tones, "how are the evolution bugs 'evoluting'?"

Ted and Irwin exchanged hasty glances, and I looked at Ted, for it was evident he was the spokesman and the master mind.

"What did you think of Cutey, if I may answer your question with another?" Ted Marston asked with a half smile.

Immediately my indignation was aroused. I had presented one side of the argument to console Mrs. Staley, but it was the other side that I proposed to give to Marston.

"If you want my honest opinion, I said frigidly, "I think that what you are doing is the most hellish practice since the days of necromancy."

"And *that* from a member of the triumvirate, if you please!" said Ted smiling unpleasantly at Irwin.

Irwin Staley was obviously embarrassed and ill at ease. I had a feeling that he was "in deep" with Ted and couldn't get out, though why, was a little hard to explain. The laboratory equipment was all his, and legally he could have kicked Ted out any time he chose, but morally he lacked the courage to do so. Ted and Irwin were living examples of mind over matter.

"Yes," I said, "and I am here to fight you to the finish if need be! Professor Lewis was right. Without the modifying and mollifying influence of a changing environment, evolution is a tool in the hands of the devil."

"I thought you never believed in his Satanic majesty," said Marston sarcastically.

"Nor do I now," I replied heatedly. "I have always maintained that evil was not a positive force, merely negative good; a misdirection, so to speak, of the same forces that can result in good. Just so is evolution a force for good if used as the Creator intended, but woe befall humanity if its laws are tampered with. Electricity is an example of a force that can benefit us or kill us, according as we obey or disobey its laws."

"Very well, Parson Caldwell," said Ted sneeringly, "granted there is some force to your argument, what are you going to do about it?"

"Be reasonable, Ted," I pleaded. "If you—"

"*Reasonable!*" he mocked. "What does the world know about reason? Since the days of Plato, Aristotle, Socrates and Anaxagoras have we advanced one iota in mentality? Answer me that! True we have invented machines, have increased our luxuries, but have we any purer logic or do we come any nearer to knowing the Why of God than some of the philosophers of 500 B. C.? Let us hope, my friend, that a rapid evolution will increase the reason in most of us!"

"But look at that—that—cat!" I finally found voice to say. "Isn't that thing a warning to you, Ted?"

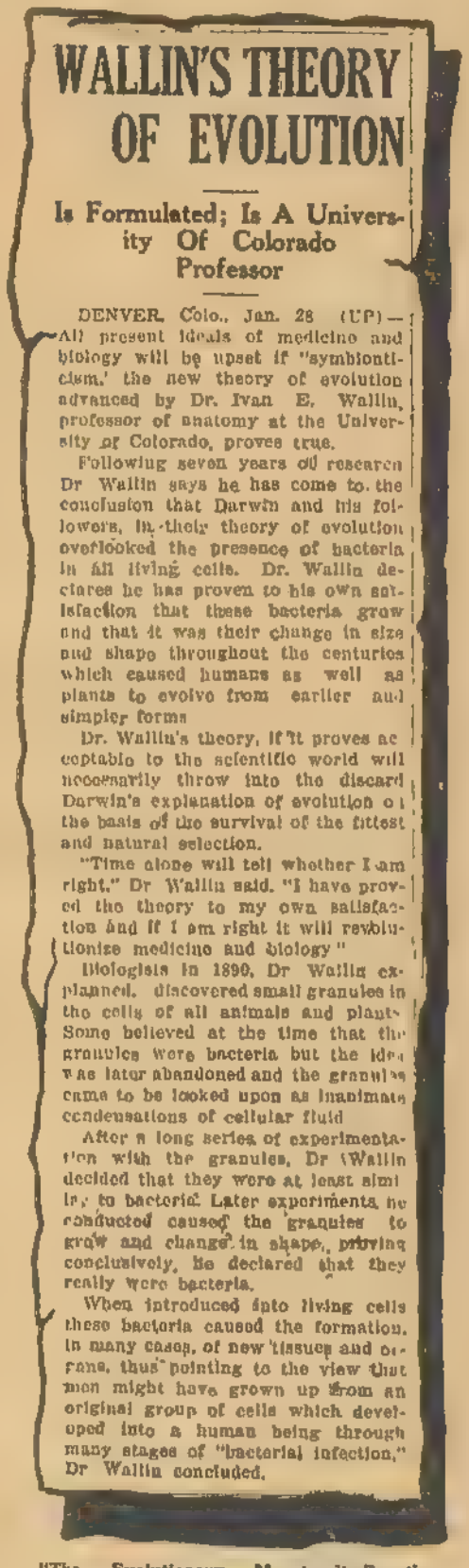
"That cat, so far removed from your present state of evolution, is a shock to you merely because it is unfamiliar," he said quietly. "Had you progressed parallel to it, you would look upon it as a delightful pet."

"Pet be hanged!" I blurted forth. "If that object coud ever be a pet, I'm going home to get a rattlesnake for company!"

"A very good idea! It would prove an excellent partnership," with which cutting words he arose and disappeared into an adjoining room.

"This situation is awful," I said to Irwin after the door had closed behind Marston. "Do you share his views, may I ask?"

Irwin Staley cleared his throat and glanced nervously toward the ante-room which closeted his companion.



WALLIN'S THEORY OF EVOLUTION

Is Formulated; Is A University Of Colorado Professor

DENVER, Colo., Jan. 28 (UP)—All present ideals of medicine and biology will be upset if "symbiontic-ism,' the new theory of evolution advanced by Dr. Ivan E. Wallin, professor of anatomy at the University of Colorado, proves true.

Following seven years of research Dr Wallin says he has come to the conclusion that Darwin and his followers, in their theory of evolution overlooked the presence of bacteria in all living cells. Dr. Wallin declares he has proven to his own satisfaction that these bacteria grow and that it was their change in size and shape throughout the centuries which caused humans as well as plants to evolve from earlier and simpler forms

Dr. Wallin's theory, if it proves acceptable to the scientific world will necessarily throw into the discard Darwin's explanation of evolution on the basis of the survival of the fittest and natural selection.

"Time alone will tell whether I am right," Dr Wallin said. "I have proved the theory to my own satisfaction and if I am right it will revolutionize medicine and biology."

Biologists in 1890, Dr Wallin explained, discovered small granules in the cells of all animals and plants. Some believed at the time that the granules were bacteria but the idea was later abandoned and the granules came to be looked upon as inanimate condensations of cellular fluid

After a long series of experimentation with the granules, Dr Wallin decided that they were at least similar to bacteria. Later experiments he conducted caused the granules to grow and change in shape, proving conclusively, he declared that they really were bacteria.

When introduced into living cells these bacteria caused the formation, in many cases, of new tissues and organs, thus pointing to the view that men might have grown up from an original group of cells which developed into a human being through many stages of "bacterial infection," Dr Wallin concluded.

"The Evolutionary Monstrosity," the author tells us, was inspired by the reading of the above clipping, which Mrs. Harris sent with her manuscript. This proves once more that the stories published in this magazine are not nearly as far-fetched or impossible as they might seem at first glance.

"To tell the truth, Frank," he said huskily, "I think Ted is going a little too far. It was all immensely interesting for awhile. I didn't even mind Cutey as you seem to, but when he began introducing evolutionary bacteria into his own system to change the tissues and organs through the many stages of bacterial infection, I confess I began to feel that he had carried the matter to an extreme. He has seemed different ever since he commenced it."

"Good heavens!" I exclaimed. "How long ago was that?"

"Only a couple of weeks," came the reassuring reply, "and in very moderate doses, but just this morning he intimated a desire to speed up the process, as he is becoming impatient."

"Irwin, if I were you I'd clear out and let him alone, even though it might mean considerable financial loss," I admonished. "He is dangerous."

"I can't, Frank, that's the trouble. He wants me in his experiment."

I looked at him in exasperation. "You can't? Has the man any power over your will?"

"I believe he must have," Irwin mumbled pitifully, "for it seems I have to do his bidding."

I turned away in disgust.

"Count me out," I said harshly. "I believe I'll take my trip to Europe after all."

I walked down the path and he followed me, a forlorn, unhappy man. His courage seemed to return as he left the vicinity of the laboratory.

"I rather wish I could get out of this whole business," he said sheepishly. "I'd love to go to Europe with you."

"Come on, old boy," I said delightedly, "can you be ready by Thursday? The boat actually sails Friday."

His eyes were wistful and he seemed almost persuaded when Ted Marston's voice called from the region of the laboratory, "Where on earth are you, Irwin? Come here. I need you for an experiment."

Instantly all the joy faded from Staley's countenance.

"Sorry, Frank, but I'll have to give up that trip. Some other time maybe," he muttered vaguely.

I stared mutely after him till he vanished behind the shrubbery at a turn in the path.

IV.

As luck would have it I learned upon my return that I had been granted a sabbatical year, and so instead of returning to my teaching that fall, it was not until a year from that autumn that I came back to the States and plunged immediately into college work. In the interim I had heard no word from Ted and Irwin. The following summer I planned to visit them, but the death of Professor Lewis shortly before the close of the school year necessitated my remaining and working at the college, for I had been appointed head of the department of Biology to take Professor Lewis' place. I missed the kindly old man and hoped I should prove a worthy successor. Thus it was three years before I returned to the laboratory that stood upon the beautiful Staley estate.

I had read of the death of Mrs. Staley two years before, so I did not stop at the house as I had upon the previous occasion, but started immediately in the direction of the laboratory. As I approached, a strange sensation took possession of me. I had an irresistible desire to flee, and yet it was not exactly fear that possessed me. Imagine my amazement when I realized that *contrary to my will* I had turned my back upon the laboratory and was walking away with the intention of returning home!

I had reached a turn in the path when I was startled by a hoarse, inhuman cry. I turned to see a decrepit figure hurrying toward me in obvious distress. There was a vague familiarity in the uncouth stranger and I stood puzzled on the verge of discovering the elusive identity.

"Who are you?" I demanded in fearsome apprehension.

Before he could reply, he turned inexplicably about and retraced his steps toward the laboratory, and I, discovering my movements now unhampered, followed him with quickening pace. To the very threshold I followed, but the door closed with a loud bang between us, and again I felt powerless to enter. Whatever the force that controlled me now as it had a few moments before, it had ceased to act while the degenerate was returning to the building. I was confident that the control was from a source within the laboratory, and that mighty though it was, it was limited in its power of concentration to one subject at a time.

Surely here was a state of affairs that needed investigation and yet I seemed powerless to act! I returned to college and pondered the situation. Should I return with an armed force or should I try it again alone?

Several days after this inexplicable occurrence I was the recipient of a letter from Dorothy Staley:

"Dear Mr. Caldwell:

I heard recently that you are again in the States, and if it would not be too much trouble I should appreciate your coming here at once. Things have been going from bad to worse, and I am in serious trouble. May I count on your help?

DOROTHY STALEY."

I confess I was puzzled. The letter did not seem like the product of the pen of the addle-pated girl I had met three years before. Could three years, even of trouble, so tone down and change the frivolous maid whom I recalled with a feeling almost of disgust? Or was the author of the note someone who was trying to trick me by the use of the girl's name?

It was late afternoon as I approached the estate. The long line of poplars like sturdy sentinels seemed to guard the mansion from external danger, but what was symbolic of its protection against an encroaching menace within? As I mounted the veranda steps, the door opened—and Dorothy stood framed in the entry-way. For a moment I discontinued my ascent of the steps and gazed speechlessly at her, for it seemed I had never seen this girl before—yet I knew it was Dorothy. What refining process had altered her nature and appearance so intrinsically? Trouble is the refiner's fire necessary for some natures, yet somehow this change in Dorothy was not so much one of degree as one of actual difference of quality.

"Mr. Caldwell," she said with a quiet, sad smile. "I sent for you, because I believed you could help me as no one else in the world can."

"I am flattered, I assure you," I murmured as I followed her into the large gloomy interior and passed the long mirror, where, three years ago, she had primped herself so vainly.

When we were seated in the luxurious living-room whose windows opened on a fountain outside, she began the explanation of her worry. Her beautiful face with its serious sincerity held my enraptured gaze as she talked.

"Things have advanced to a terrible state between Ted and Irwin,—and even I—" she paused and glanced about her apprehensively, "am fearful of what the

future has in store for us all. Ted has—" here she broke down completely and was unable to continue.

"Just what has Ted done?" I asked partly to relieve the embarrassing and distressing silence.

"I have not seen Ted in the last year," she replied, sitting up straight in her chair and making a renewed effort to control herself, "but I have heard of his progress through my brother who is his helpless tool—and it is my understanding," she lowered her voice to a whisper, "that Ted has progressed (if one can call it progression) beyond any semblance to humanity as we know it!"

"Horrible!" I ejaculated, mentally recalling a certain example of feline evolution.

"I thought I loved him once," continued Dorothy, "but now I do not even respect him."

"No, I should think not," I replied dryly. "And it seems to me he should be made to relinquish his hold on Irwin. Maybe what he does to himself is his own business, but he should not be allowed to involve others."

"'Be allowed' is a strange term to be used in regard to Ted Marston," said the girl bitterly. "He is his own master. For some reason or other he will not allow me to see him, but sends Irwin to me with his messages. A week ago Irwin came to the house looking so wretched and miserable. I pleaded with him to force Ted to go away, but all I could get from him was, "I can't sis. I know it is unbelievable but I've got to do what he says. He really is wonderful. If you knew him as I do, you would think so too.'

"I was sitting in this very chair, Fra—er, Mr. Caldwell, a week ago," the sweet voice went on, "during this conversation with my brother Irwin. He looked so unhappy, even while he praised Ted, that I knew his tongue belied his real feelings in the matter. Suddenly he told me very earnestly that Ted still loved me, but that he knew that two beings so far apart in evolutionary development would not be suited to one another, so he intended inoculating me with the germs in order to advance me to his stage of development. Then we two, he told me through Irwin, would rule the world! I was so terrified I found myself unable to move, and as I sat there stunned, Irwin quietly advanced and without the slightest warning of what was to follow, plunged a hypodermic needle into my arm. I must have fainted, for the next I knew I was in bed and Cora, our maid, was moving about in my room. Strange to say I felt no ill effects, in fact, if there was any difference, I felt better, not physically so much as mentally. I seemed to understand things in a quiet, impersonal sort of way, and was, so to speak, above petty emotions and passions that had swayed me constantly prior to this experience. If this was evolution, I thought, it was very much to be desired and I wondered at Irwin's very apparent fear of Ted. Then that night Irwin came again, but this time he seemed different."

Two tears rolled down Dorothy's fair rounded cheeks, but she continued with obvious effort.

"He told me that Ted was asleep, and that upon such rare occasions as he slept, he, Irwin, seemed free to follow the dictates of his own will. Previously he had found himself locked in, but upon this occasion he had escaped through an open window and a torn screen. He warned me earnestly not to allow him to inflict me again with the germs of evolution.

"'This dose which was very light for the initial treatment would have very little effect on the body tissues,' he told me, 'but each subsequent injection would cause such obvious change that in time one would be, as Ted is, unrecognizable as a human being!'

"I begged him to tell me what Ted looked like, but he only shuddered and turned away and his last words were a repetition of his first, 'Don't let me administer to you any more germs of evolution.'

"That was a week ago and I have not seen him since, —my own brother—yet I dare not seek him under these awful circumstances. I want to see that he is well, but I dread his approach for what it will mean to me. Can you help?"

Her last words expressed such utter anguish, I longed to put my arms about her and comfort her, but instead I merely said, "Dorothy if I may be allowed to stay here until this danger that threatens you is put out of the way, I shall count it a very great privilege."

For answer she smiled a grateful acquiescence.

V.

"YOU may have the south-west bedroom during your stay here," Dorothy informed me. "Its windows overlook the laboratory, though the latter is so completely surrounded by trees and bushes that only its approximate locality can be detected."

A few minutes later I stood at a window of the beautiful room assigned to me and looked out across a veritable Eden; winding gravel paths, a splashing fountain, tall trees and clumps of bushes. And suddenly, with something like a shock, I knew that the large mass of vegetation at the far end of the estate hid from view the laboratory that housed my former friends.

"Former!" Was it true that I could no longer think of them as such?

"Such is the effect upon normal man of gross distortions of God's laws," I thought.

It was dusk by this time, and as I turned from my survey of the grounds below me to put on the light, I detected a movement in the shrubbery near the spot where the laboratory was hidden from view, and then much to my surprise, a figure emerged from the surrounding shadows. As it walked with a slouching posture and shuffling gait toward the house, along the flower-bordered path, I recognized with a disheartening shock, Irwin Staley; no longer the aristocratic appearing youth I had left three years ago, but a disheveled hobo with apparently one vague but persistent idea obsessing his mind.

I rushed to the door of my room, opened it and peered down the dimly lighted hallway. There was no one in sight, but I heard Dorothy moving about in the lower hall.

"Are you going to lock the house for the night?" I called to her from the top of the stairs.

"Yes," her sweet voice floated up to me. "I am on my way to the front door now."

Leaning over the broad banisters, I glimpsed her as she approached the door, but before she reached it, it was thrust open from the outside and Irwin staggered in. Her face, white with terror, Dorothy turned beseeching eyes in my direction and I lost no time in descending the stairs. Irwin looked at me with apparently no recognition. If his had been a one-track mind in college days, it was now even a narrow-gauge one-track mind, for it seemed that no other idea entered his brain other than his mission in regard to his sister.

"Hey, sis," he said ignoring me as if I were nonexistent, and for ought I know, I may have been so to him, "Ted wants you to come out to the laboratory. He wants me to give you the evolutionary bacteria treatment in his presence. He claims he can advance you to his state in a remarkably short time."

As Dorothy shrank from Irwin, he continued. "It's no use opposing him, Dorothy. He is determined. And really you don't know what an honor it is to be chosen as mate and co-ruler with one who is in a position to

rule the world. You and he would be so far in advance of the rest of the human kind that the establishment of your recognized authority would be immediate. Your progeny, the royal family would—Why Dorothy!"

Dorothy swayed unsteadily. I thought she was going to faint, but she rallied and turned to me. I stepped up to Irwin and seized his shoulder in a firm grip.

"Irwin Staley," I said harshly, "whether you know it or not, I am your old friend, Frank Caldwell, and though you and Ted are apparently not the same fellows I knew in college days, I am unchanged, and I propose to bring you two to your senses. Of all the crazy 'goings on' I ever heard of, this caps the climax!"

During my outburst, Irwin regarded me sullenly and with a suspicion of defiance, but the latter quality was not outstanding in his demeanor. To me it was apparent that he was a coward doing another's will.

Suddenly he put a hand in his pocket and quickly drew forth a small hypodermic syringe, at the same time roughly laying hold of Dorothy's arm. In another second I had caught him in the chin with my fist and sent him sprawling on the floor. He staggered to his feet whimpering and I grabbed him by his coat collar.

This scene must have been very distressing to Dorothy, but I could spare no one's feelings if I was to cope with the will of this monster of the future.

Turning to the girl, whom I knew now I loved dearly, I said, "Wait for me, dear, Irwin and I are going to see Ted and we'll be back again."

"Oh Frank," she cried, her voice trembling, "I am afraid for you! Brave and fearless as you are, what can you do against the accumulated knowledge of centuries?"

"But it isn't that, sweetheart," I exclaimed joyfully. "Don't you see it couldn't be! Environment *must* play a part in the future development of the race, and Ted has no greater environmental experience than we've had. His physical body may have changed but not exactly as ours will, for the mollifying influence of man's changing surroundings would tend to soften and temper any radical tendencies of development. We are all subject to the inexorable law of cause and effect which will develop everything proportionately. Ted is an anachronism, and as such he has no place in his condition in our world, now or in the future."

"I believe you are right," she said smiling through her tears.

As I opened the door with one hand and clutched Irwin firmly with the other, a disquieting thought came to me, and I said to Dorothy, "If I succeed, as I hope I can, in returning Ted to his former state, so that he is really the Ted Marston of old, am I liable to lose you to him, Dorothy?"

She came close to me and laid a hand on my arm. "Don't worry on that score, Frank. I believe I'm changed myself, for I could never again love Ted." coming close to my side and putting her lips to my ear, she whispered, "And do you know I don't believe I've been quite the same since I had that light injection of evolutionary germs. Could it—do you think—?"

"I *know* it," I laughed. "Probably the very first dose improved Ted too, but he did not know enough to quit when he passed beyond the range of present possible environmental influence. He became drunk with the lust for power which he mistakenly thinks is his."

"I'd hardly say 'mistakenly'," said Irwin, who had been a silent listener. "His power is a fearful thing."

Stooping, I kissed Dorothy as she stood close by my side, and in another moment Irwin and I were outside in the darkness.

VI.

I KEPT a firm grip on Staley's arm, for I did not want him to escape and apprise Ted of my coming. No words passed between us as we proceeded in the direction of the secluded laboratory.

What an ideal place it had been from their point of view, in which to develop their nefarious scheme. Completely hidden by tall trees and dense shrubbery, it seemed as completely isolated as a desert isle.

Knowing that Ted expected Irwin's return with his sister, I permitted Irwin to enter first and watched him through the open door as he slunk abjectly into the large room that was brilliantly lighted and occupied the front portion of the building. Beyond this, its door in a line with the entrance at which I stood, was a smaller dark room where could be glimpsed the faint reflections from bottles, test-tubes and various chemical paraphernalia. It was apparent in his every move and his self-conscious mien, that Irwin hoped to reach the other door before it became necessary to reveal to Ted the fact that Dorothy was not with him. In thinking it over, I presume that Ted's eagerness to see the girl enter, and his firm belief that she was with her brother, allowed Irwin to reach the other door unmolested, and just as he entered the darkened interior, I stepped boldly into the first large and well illuminated room.

I say I entered boldly. I did, but with that act my boldness ceased for I was rendered a craven by what I beheld. Upon a cushion at the far end of the room reposed what looked to me like a phosphorescent tarantula. As I gazed with widened eyes and gaping mouth, I realized that it was not of the spider family at all. The circular, central part was not a body, but rather a head, for from its center glowed two unblinking eyes, and beneath them was the rudiment of a mouth. The appendages which had upon first appearance resembled the legs of the spider, I perceived were fine hair-like tentacles that were continually in motion as if a soft breeze played through them.

When I realized that the thing was regarding me with those staring, expressionless eyes, I tried to summon forth what little dignity I could muster, for instinctively I sensed that the repulsive form housed an exceptional intelligence. But I had never undertaken a more difficult task, and I was thankful for the moment that I was not standing in front of my Biology class at the university.

"Well what do you think of the bacteria theory of evolution now?"

Had the thought flashed through my brain, or had a thin, piping gasping voice put the question to me through the medium of sound? Evidently sound had played some part, for as I looked at the cushioned monstrosity, I saw that the aperture beneath the eyes was moving.

"Don't you recognize your old friend Ted Marston?" came the derisive query in thin, wheezing tones. "Is the gap too great for your feeble consciousness to cross?"

"God in heaven," I fairly screamed, "you—Ted Marston!"

"The same," continued the voice, which though faint, carried with it a quality of undying persistency. "Do you realize that as you stand before me you are perfectly powerless to do other than my will? Do you know that it was I who prevented your entering the laboratory a few days ago? When my mind is concentrated upon you, you have no volition of your own?"

I realized that what he said was indeed true. He controlled me as completely as a master mechanic controls a machine.

He continued, satisfied with the demonstration of his power.

"You have evidently prevented Dorothy's appearance, but I can attend to that later. For the present I will astonish your feeble mind with a few facts. The rapid growth of evolution bacteria has reduced my body to an efficient minimum. The tentacles that surround my body take the place of all the old five senses except that of sight, and in addition to the five senses known to man in your stage of evolution, I have added seven more, and I verily believe more will evolve in time. These tentacles are more sensitive than the radio antennas of your era, and they pick up thought waves with little or no difficulty."

At this moment Irwin was visible on the threshold of the farther door; a decrepit being completely robbed of his personality. I questioned Marston in regard to him. The inhuman monstrosity gave a mirthless laugh. "Here we are, the triumvirate," and again that sardonic laughter wheezed on the air. "I found Irwin easier to manage with decreased mental ability, and I find all I rule must be like him, before Dorothy and I can control the world."

"Your scheme," I cried in horror, "is to impair men's minds and then to rule mentally as a god?"

"You are really very intelligent for so low a creature," he mocked. "I would do well to begin with you. Irwin," he called, "I need your assistance."

As he called to Irwin, I felt his mental hold upon me relax, and I moved a step toward him while Irwin looked at me in surprise. An invisible barrier stopped me almost instantly. He continued to hold his attention upon me, while the man in the adjoining room was moving about apparently carrying out his command for a mind-enfeebling treatment upon me.

"You know it was one of your theories in the old days, Frank," the thing that was Ted continued, "that God accomplishes His purpose through the agency of man. Well that is exactly the manner in which I shall accomplish my purpose; through mankind. But unfortunately I have to take humanity back mentally, for I am not God—yet!"

"*Yet;* you vile blasphemer!" I screamed, and then I saw it! I knew that the only thing to do was to forget what I saw in the adjoining room and occupy all of the monster Marston's attention, *all* of it! I cursed him, I threatened and even attempted violence, and all the while, a being, who stood mentally at the dawn of humanity, approached from the ante-room bearing in his arms a great crow-bar.

Could I keep from betraying by so much as a batting eye-lash the approach of the man with the clouded brain?

"I will defy you, Marston," I screamed, "and I will do it alone, I—I—I. Do you understand? It is I, Frank Caldwell, who will oppose your rule."

A gathering mist blurred my vision, but as if viewed through a breeze-wafted veil, I saw the spidery product of evolution rise apparently without support and float in the air toward me like a bloated octopus in the water. Another second that seemed an eternity and the bar descended with all the force of brute man behind it, and I knew that the quivering mass of flesh could exert no more evil influence upon humanity. A few more blows and the thing that had been Ted Marston was no more.

The End.

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AMAZING STORIES FOR THOSE TIRED OF THE CUT-AND-DRIED LITERATURE OF THE DAY.

The MURGATROYD EXPERIMENT

By Captain S. P. Meek U.S.A.

NOW that the genius of Anderson has succeeded in reproducing, on a practical scale, the epoch making experiments of Huddleston on releasing the internal energy of the atom and has made the large scale transformation of matter into pure energy of such a character as to be readily available for the use of mankind and a practical matter, the danger of starvation is removed from the world—or at least indefinitely postponed. Mankind can sit back in peace, assured of a food supply for centuries to come. The only problem of limitation of population that need be considered now is that of finding dwelling space. Since science has achieved the goal toward which all the feverish activity and endless experiments of the world's laboratories have been directed for the last fifty years, it is interesting to briefly consider the history of the last two hundred years and to take note of some of the abortive attempts that were made to solve the problem of food supply. Perhaps the most interesting are the sensational experiments of Doctor Murgatroyd, which for a time threatened to destroy, or at least, to radically change, the nature of all animal life on the planet.

Most of my readers are familiar, through reading, with the vain attempts made to assure universal peace to the world after the great conflict of 1914-1918. The statesmen of the world assembled at Versailles and vainly tried to formulate a league of nations that would prevent future bloodshed. They did their work well for that day and it was only the fact that the world was not yet ready to renounce warfare that prevented their attempts from being successful. An era of more or less good feeling was established and the nations of the West were transformed from armed camps into a state of semi-peacefulness. The great statesmanship and the wonderful ability of Secretary of State Kellogg of the United States succeeded in putting into effect a system of multilateral treaties outlawing war between most of the civilized nations. The age-old antipathy between France and Germany was the hardest to quench, but the effort of Secretary Kellogg, aided by the tireless energy of Secretary of Foreign Relations Hughes, were at last crowned with success and the nations of the West assembled in solemn conclave in 1936 and ratified the great treaty that took the armed forces of the world from the control of the individual nations and placed them under the control of a Senate of Nations, changing their status from that of national protective agencies to that of a huge international police force. Even Russia joined in the movement and an era of peace followed, that allowed greater advance to be made in the realms of science and human relationships during the next three decades than had been made in the preceding thirty centuries. So engrossed with the pursuits of peace was the western world, that no one noticed the tremendous military preparations nor the equally tremendous population increase that was going on in the Chino-Japanese Empire and the storm of war that overtook the world in 1967 came as a rude surprise to the west. It was a war of white against color; of the science of the west against the man power of the east and south. There is no need to trace in detail the fortunes of the two great combatants. For eleven years, a ruthless war of extermination was waged and it is estimated that over a billion lives were sacrificed. The east suffered most heavily at first, but as their manpower was reduced, they adopted western science and the conflict developed into a deadlock with no prospect of its being broken.

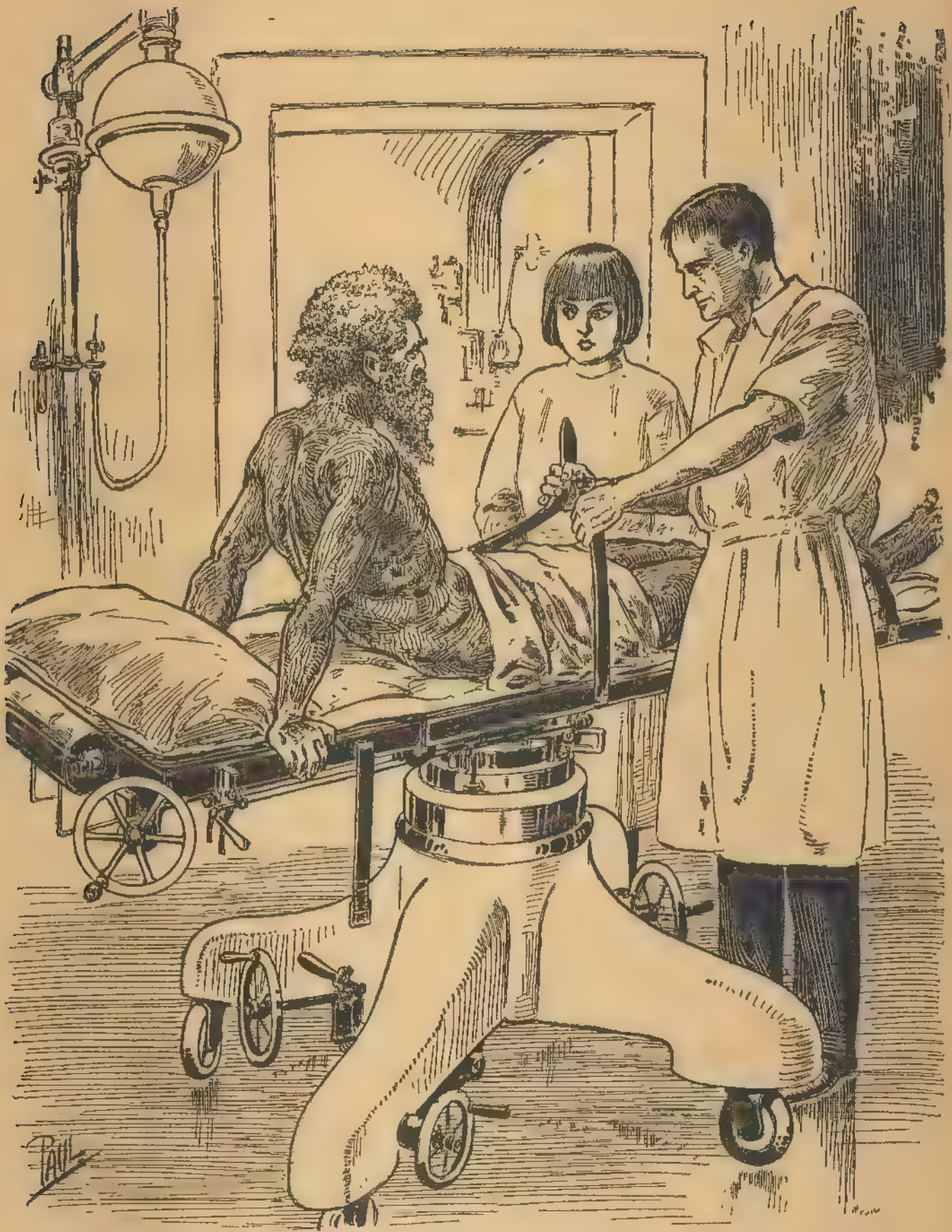
In 1978, two prophets arose in the east and began to preach the doctrines of peace. Chang T'sen Lo paved the way for final peace, but paid the last great penalty at the hands of his war-mad countrymen. Katar Singh, his disciple and successor, took up the work where Chang left off and was successful in his efforts.

A sudden hatred of war swept over Africa and the Orient and since the primary cause of the conflict, the overpopulation of the world had been removed by the high mortality of the conflict, the weary world was glad to accept his teaching and in 1980, the nations laid aside their arms and peace again reigned. The lesson that the world had learned was well learned and a universal congress of mankind wiped out all international boundary lines and put all government in the hands of an inter-racial committee, who governed in the name of all mankind. The immediate result of this action was an enormous and unprecedented increase in population. For half a century, no alarm was felt at this and the world was delighted at the fact. By 2030, the population of the world had grown to such an extent that it was found necessary to limit somewhat the consumption of food and some far-sighted economists began to sound a note of warning. They were voices crying in the wilderness for the improvements in agriculture made by Murgatroyd and the success that crowned the efforts of Ram Chunder De to transform energy into matter, thus enabling the huge power of the tides to be converted into foodstuffs in the laboratory, increasing the food supply of the world at an even pace with the increase of population.

HERE is one of the most amazing stories that it has ever been our good fortune to present to our readers. The story fairly takes your breath away, and for sheer daring, exciting narration and excellent science, you will have to go a long way to surpass it.

We welcome our new author to our ever-growing list of contributors, and it is our great hope that we may be fortunate enough to present our readers with more stories from his capable pen.

IT was not until 2060 that the situation became acute. By that time, the population of the world had grown to the enormous figure of thirty-one billions and the average length of life had increased to one hundred and



Seizing a rope from the table behind me, I complied with his request.... As a further precaution, I strapped him on an operating table.

forty-two years through the development of serum therapy made in the laboratories of Thibet and Norway. It was in that year that the Inter-racial Committee realized that the abolition of war and the practical elimination of disease, those two great population controlling factors had enabled the population to increase to such an extent that the world was not large enough to produce the food supplies needed, even with the conversion of all available energy into matter. The report of the Sub-committee on Science for that year points out the following facts: The entire available energy of our world was being converted into foodstuffs with practically no loss, except that of the energy derived from the sun. This energy was being converted into food by a round about and uneconomical method, namely, through the medium of plant propagation. The two remedies proposed were, first, the release of some of the latent energy that all knew existed, or second, the direct and economical utilization of the energy derived from the sun.

The first method was that recommended by the Sub-committee and the leading scientists of the world were assigned to the problem and every assistance was given them for its solution. There were a number of scientists who dissented from the views of the Sub-committee and proposed the other solution. Among these was Doctor Fabian Laurent Murgatroyd.

Doctor Murgatroyd's daughter, Eileen, and I had been classmates at the University of Hawaii, several years before and had kept in close touch with one another since our graduation. She had been a student of physiological chemistry and plant biology while I had specialized in physical chemistry and our subsequent work had led us into widely different fields. We were often opponents in matters of science, but were personally the best of friends and had a great mutual respect for each other's scientific ability. The intimacy, in fact, was giving promise of ripening into a deeper feeling than friendship, when the needs of mankind rudely interrupted. At the time that the experiments for the release of the latent energy of matter were initiated on a large scale, I was called from my home in Hawaii to take charge of the laboratory at Berne, Switzerland, and was made a consulting member of the Sub-committee on Science. Consequently, I was present when Doctor Murgatroyd presented his case before the Sub-committee.

Murgatroyd's work in the field of plant biology was sufficient to warrant him a respectful hearing, even had not the magnetic personality of the man been sufficient to demand what was freely given to his scientific attainments. The Sub-committee listened carefully to the words of the huge figure that stood before them, punctuating his well-chosen phrases with energetic shakes of his leonine head crowned with a mop of shaggy grey hair.

"The Committee knows very well the history of my work," he began, "and my knowledge of chlorophyll. The only method we have of converting the energy received from the sun is through the use of that substance. Chlorophyll, of course, is the green coloring matter of plants which has the peculiar property of transforming carbon dioxide gas, water, and the sun's energy, into starches and sugars which are available for assimilation by the animal world. All of our food supplies, save those produced in the laboratory by the direct conversion of energy into matter, are derived from this source. The method is round about and very uneconomical. First the energy must be converted into sugars and starches with the waste attendant on all forms of metabolism and then it must be reconverted into animal tissues with another large percentage of waste. Sometimes it is allowed to go through still another step, as occurs when we feed plants to animals and then eat the products of animal life in the form of eggs, milk and meat. In such a case, not over one-half of one per cent of the initial energy taken from the sun ever goes into animal tissue. It is my hope to remedy this situation and eliminate this waste.

"Chlorophyll is a very complex substance. The Sub-committee is familiar with the work that I did some thirty years ago, when I revolutionized plant husbandry by the production of superchlorophyll-bearing plants, thus enabling five crops of grain a year to be raised on land that formerly produced but one crop. This was done by substituting for some of the nitrogen atoms in normal chlorophyll, an atom of radium, and by decreasing by four, the number of carbon atoms with corresponding decreases in the oxygen and hydrogen atoms. The result was a substance which is five times as efficient as chlorophyll and which differs from hematin in the location of the double bonds connecting some of the atoms. For the benefit of the members of the Press, I will state that hematin is one of the constituents of hemglobin, the red coloring matter of the blood which enables the carbon dioxide produced in the body to be eliminated by way of the lungs. Hemoglobin consists of hematin and of globin, a basic protein.

"It is my opinion that it is possible to replace the hematin of the blood by superchlorophyll or some related substance and thus enable mankind to utilize directly the energy derived from the sun. Should my theory be correct, mankind can subsist on water and a small amount of dissolved mineral matter with the aid of sunlight. Agriculture will be unnecessary and the enormous space devoted to the raising of plants can be utilized for dwelling space. The food supply of the world will be increased by over five thousand per cent and the danger of world-wide starvation removed. The idea of releasing the free energy of atoms is idealistic. It has been attempted for the last century and a half without material success. It is improbable that the problem can be solved in time to be of any value in the impending crisis. On the other hand, success has crowned my efforts along the lines of plant biology and I believe that in five years I can solve my problem. I therefore request authority from the Sub-Committee to work on my theory and ask for space, funds and assistants to carry on the work."

THE Sub-committee deliberated for some time on Doctor Murgatroyd's request before the Chairman announced the decision.

"Doctor Murgatroyd," he said, "the Sub-committee has considered your ideas with great care. We feel that any attempt to alter the physical characteristics of mankind is an experiment fraught with the gravest danger to the world. We feel that the release of latent energy is the only practical solution of the problem with which we are faced. Nevertheless, in view of your great contributions to the welfare of the world and your great and unquestioned attainments in the field of science, we do not feel that we can, in justice to mankind, refuse to authorize your experiments. We have, therefore, allotted to you the Island of Kahoowale, in the Hawaiian group, for your work and we authorize you to draw on the central pool for the needed supplies and assistants. We have also assigned, as observer for the Sub-committee, Doctor Harold Wilbur, who we understand is an intimate friend of yours. Doctor Wilbur will stand relieved from the laboratory at Berne and will be at your service at once."

The meeting turned to the consideration of other

matters and Murgatroyd and I left the laboratory together.

"This is fine, Harry," he exclaimed. "They couldn't have given me an observer that would have been more welcome, and Eileen will be delighted. She will be my chief assistant. We have often disagreed in the past and I doubt if you look with favor on my idea now, but I know that your reports will be impartial and that your opposing viewpoint will stimulate us and help my work immensely. Come up to my hotel and I'll go over my plans with you."

When we were seated in the luxurious suite that had been placed at Doctor Murgatroyd's disposal by the Sub-committee when it had agreed to hear his views, he went further into the matter.

"I might as well tell you at the start, Harry," he said, "that Eileen and I have made a number of illicit experiments along this line before I brought the matter up before the Sub-committee. You needn't look so horrified. We did not neglect our assigned work and we performed these under conditions that assured us absolute control and gave no chance to turn loose on the world another plague like Shird Khan turned loose a generation ago, before all experimental work was placed under strict control. The point is that we have already demonstrated the practicability of my idea. We managed to substitute a superchlorophyll derivative for the hematin in the blood of a frog. He lived for twenty days and amply demonstrated his ability to convert the sun's rays into tissue directly. I am all ready to experiment on higher forms."

"What are you going to use, apes?" I asked.

"Human defectives," was his startling rejoinder.

"Impossible!" I ejaculated. The Sub-committee will never allow it. All experiments must be successfully tried on lower forms before humans can be used."

"They gave me *carte blanche*," he replied grimly. "Of course, I will try it on lower warm-blooded forms first, but I will be ready for the final stages in a few months, I think. Now here is a list of the assistants that I want besides Eileen. Will you see that they are properly requisitioned? It will help me a great deal if you will take care of that, while I get together the equipment that we need."

There was no resisting the dynamic personality of the man and I assembled the assistants that he desired and helped him assemble the supplies and equipment that he needed, including thirty human defectives from the home at Alexandria. We landed on Kahoowale on January 10, 2061, ready for the great experiment.

The work of erecting the needed buildings and setting up the heavier equipment had already been done by the construction forces sent ahead and when we arrived, there was nothing to do but to move in and start our work.

I will not burden my readers with the details of the endless experiments which Murgatroyd and his assistants carried out. They are reported in detail in the volumes of the reports of the Sub-committee on Science for the years 2061, 2062 and 2063. Despite the optimism of the Doctor and herculean labors of both himself and his assistants, there were serious and unexpected setbacks. The methods which had been crowned with instant success when tried on reptiles, failed completely when tried on warm-blooded animals. Countless rabbits, guinea pigs and rats were sacrificed in abortive experiments and Murgatroyd labored for hours in his private laboratory evolving new and weird compounds related to the hematin and chlorophyll groups. The trouble seemed to be to get the chlorophyll to combine with globin, the basic protein of the red blood corpuscles.

My duties were light and, while I did my best to help out, my lack of knowledge of plant biology and my real disbelief in the practicability of the experiments, were handicaps that made me almost useless. Eileen was of great assistance to her father, but when he noticed that her health was failing under the strain of unremitting work, he remonstrated and at last laid down the law and insisted that she rest at least two days a week and limit her working hours on the other five to ten hours a day. Eileen protested, but her father was firm and as a result we had a good deal of spare time to spend together.

THE beautiful Hawaiian nights wove their customary magic spell and ere long Eileen and I decided that life without one another was a waste of time and I duly requested her hand from the Doctor. He stroked his leonine head for a moment in deep thought.

"I am inclined to favor your request," he said at length. "So far as I can tell, you are well suited for one another. Your temperamental indexes are close enough to assure harmony and far enough apart to prevent boredom. Your mental attainments and developments are such as to make your union especially suitable and your opposing viewpoints on scientific matters will prod each other to do better work. I have only one objection.

"Eileen is essential to my work here and I know of no other observer that the Sub-committee could send who would be as welcome as you are. The regulations regarding marriage require, as you know, that the newly married couple be entirely separated from their parents for a period of adjustment of two years. The loss of both of you would cripple me terribly. For the good of mankind, I feel that you should wait until the successful outcome of my experiments or their definite abandonment.

"You are both well under forty years and have at least a hundred years of life before you, sixty of which will be at full vigor. My work will be over in five years at the outside. Will you not wait that long?"

Eileen agreed with her father and while our future marriage was an understood thing, the date was indefinitely postponed. With this added incentive for rapid completion of our experiments, I threw myself into them, body and soul, and managed to make myself over into a very able assistant. I arranged my hours of voluntary work to agree with Eileen's and our free hours were spent together, bathing in the warm water of the Pacific or lying around on the sunkissed or moonlit beaches, weaving beautiful plans for our future happiness.

Nearly three years of the five predicted by the Doctor had passed before he awoke me at midnight one night with the light of inspired madness in his eyes.

"Success, Harry!" he shouted in my ear, "I have done it. Come to my laboratory at once!"

I followed him and there in a cage on his table was the weirdest object that I had ever seen. It was a white rabbit, but what a rabbit! The eyes that would normally be pink from the blood showing through the pigmentless iris were a brilliant green and the normal pink of nose, mouth and ears was changed to the same ghastly hue.

"It lives!" cried Murgatroyd, almost beside himself for joy. "It lives, moves and breathes and it is a plant! Observe!"

He took the rabbit from the cage and, puncturing its hide, drew a few drops of liquid from its veins into a test tube and held it to the light. The "blood" was a brilliant green and it did not need the analytical tests that he made to assure me that he had indeed changed

the nature of the blood in the luckless rabbit from that of an animal to that of a plant.

Subsequent experiments with his creation proved the correctness of his theory. The rabbit was indeed a moving plant, able to assimilate water, carbon dioxide and soil matter and transform them into tissue with the aid of the sun's rays. An air of new enthusiasm infected the laboratory and the preliminary stages of cat, dog, monkey and ape were rapidly run through, clearing the way for the great final experiment on human beings. At last the required gamut of experiments had been performed and I radioed the results to the Sub-committee, together with Murgatroyd's request that all assistants, except Eileen, and all other personnel, except myself, be removed from the island and that he be authorized to proceed with his experiments on the human defectives. I indorsed his request and it was duly approved and the laboratories were cleared of all but Murgatroyd, Eileen and myself.

The group of defectives on which the experiments were to be performed were very carefully chosen. There were no mental or moral defectives among them. When it is realized that no one of them had a mental index below 1.7 nor a moral index below 6.9, (it should be borne in mind that the maximum possible rating in each case was 10.0 and that the average mental and moral indexes of all mankind were 1.32648 and 5.49237, respectively, as indicated by the 2060 census), it can be realized that they were really a superior group of men and women. The average physical index, however, was only 2.938, every one having some vital error in his or her physical makeup; either a deficient glandular development or a predisposition to disease that would make death or disability a practical certainty before even the comparatively young age of sixty was reached. It was, in fact, for this reason that they were chosen. Doctor Murgatroyd was very insistent that the subjects must be well above the average mentally and morally and radically deficient as to physical index. He never explained his reasons for this, but in view of the results of his experiments, it seems probable that he had some faint inkling of the possibility of the very results that he obtained.

When we were ready to proceed, as a first step each subject in turn was brought into the laboratory and the object of the experiment and the method of procedure was carefully explained. Each was then asked if he or she was willing to be made a subject of the experiment. They listened carefully and with one exception pronounced themselves more than willing to undergo the treatment. They were an intelligent lot and they had confidence in Doctor Murgatroyd and knew also that the Sub-committee on Science had satisfied themselves that the experiment was needed for the good of mankind. Even should death result, they felt that their lives would have been given up in a good cause. There was one exception, a young man of about fifty, a Russian, who had inherited the virus of revolution from his forebears. He sullkily replied, that as he had been condemned to be murdered, it was immaterial to him how it was done. It was evident that no co-operation could be expected from such a subject and Doctor Murgatroyd radioed the Sub-committee of his refusal to lend willing aid. He was at once instructed not to use him. I might state in passing that when his record was looked up, it was found that he had refused to be used in five experiments prior to this occasion and the Sub-committee, feeling that his attitude constituted a menace to the advancement of mankind, ordered him to be mercifully removed from the world, a sentence which was duly carried out.

When the co-operation of the subject had been secured, he was disrobed and his entire skin carefully sterilized to prevent the possibility of infection tending to prevent the success of the experiment. His mental, moral, physical and temperamental indexes were then taken and checked with the records that we had. When no serious disagreement was found, we were ready to operate.

A vein in the right arm was severed and the two ends attached to glass tubes leading into a reservoir containing a preparation of artificial blood which was able to sustain life for an indefinite period under the proper conditions. Connected to the reservoir was a small pump and the glass receptacle to receive the blood drawn from the subject. After the ends of the vein were attached to the apparatus, the pump was started and the blood gradually drawn from the subject's body and replaced by the synthetic compound above referred to. When this process was completed, the ends of the vein were again joined and the subject warned to remain motionless. (Synthetic blood will preserve life almost indefinitely if it is not broken down by exercise, but if the patient should stir around much while his veins are filled with it, death will soon ensue).

The removal of the blood and the care of the subject were the parts of the experiment which I performed. When my part was done, Eileen and the Doctor took the blood which had been drawn from the subject and subjected it to a complete breaking down process as far as the red corpuscles went. The hematin was then removed and by the action of rays of various wavelengths and intensities transformed into hemaphyll, as Doctor Murgatroyd called his new compound. The hemaphyll was restored to the balance of the blood, and the corpuscles were rebuilt in the serum and the resultant bright green liquid returned to the subject's veins by means of the pumping apparatus with which the blood had been removed. The subject was kept in a state of suspended animation for five days to allow certain internal changes to go on in the body and was then restored to consciousness.

THE first subject that we worked on was a beautiful young girl, not over thirty years old. Her name was Hilda Erickson and she was one of the few specimens of the pure blonde type left in the world, as the blonde type had proved very unresistant to disease and consequently had become nearly extinct. Her hair was a pale golden, her eyes blue, and her skin of a peculiar rich pinkness that would have warned a scientist, even without a glance at her record card, that she was nonresistant to tuberculosis. She was rather pale with excitement when she was brought in and her coral lips stood out like bloodstains against the white of her face. As the blood was drawn from her body and the colorless synthetic fluid pumped into her veins, the color faded from her body and lips until she was chalk white all over, her lips merging into the cheeks almost without perceptible change of color. She looked like a beautiful marble statue and I patted her hand gently, feeling that it was a shame that such exquisite coloring as had been hers was gone from the world forever.

For nearly an hour, Eileen and her father labored over the blood. At last they bore the vessel containing it up to the side of the table where our subject reclined and motioned me to reconnect the pump with her veins. I did so and as the motor revolved slowly, the synthetic blood, tinged a very faint pink, was withdrawn and the green fluid pumped in. Gradually color was restored to the marble-like body and the parting line between the lips and cheeks began to show again. But what a difference! Gone forever was the coral of those lips, replaced by a vivid green. The rosy flush

that had been on her body was changed to a pale green hue, and even the blue of the eyes had a decided green cast. When the last trace of green fluid had vanished from the apparatus, I stopped the pump and hastily joined the parted vein while Eileen attached the anodes and cathodes of a suspended animation machine to her head and feet and turned on the current. The Doctor removed his operating helmet with a sigh.

"I am an old man," he said, "and I am tired. It will be five days before we know whether she will live, and in the meantime, I am going to rest. You children had better do the same."

"Harry," asked Eileen as we sat on the beach that night, "will you love me when I am green like that?"

"Green?" I exclaimed with a start. "What makes you ask such a question?"

"You know that if Dad is successful with the experiment, the Inter-racial Committee will have every one treated that way," she said. "It will mean a saving of ninety-eight per cent of food and energy and will mean the saving of mankind. It is a great thing, but I don't believe that I'll be pretty when I'm green."

Her words brought the situation home to me with a sudden shock. I had been co-operating heartily with the Doctor and had indeed come to think that it would be a tremendous boon to mankind if he succeeded, but it had never occurred to me that it would strike so near home.

"It takes a good while to make the change," I consoled her. "I doubt if the world will ever get around to us before we are too old to care much, if we aren't dead by the time they reach us."

"You forget that in anything of this nature, the developer and his assistants must be the first to undergo the treatment," she replied. "If the experiment is a success and I believe that it will be, you and I and Dad will all be green in another two years. Oh, Harry, won't you look funny, green?"

The humor of the idea overcame her and she laughed herself nearly into hysterics. At the thought of myself green as grass and eating sand and loam for a dinner, I was forced to join in her mirth, although the idea of desecrating her rich beauty as that poor girl's was desecrated that afternoon struck a jarring chord in my mirth.

"I'll make a bargain with you, Harry," said Eileen at last as her laughing fit passed, "I'll love you when you are green, if you'll love me. Really though, it isn't as bad as it sounds. It is all a matter of what we are used to. One green girl in a pink world is hideous, but I dare say our children would consider a pink girl hideous in comparison with the green maidens they will be used to. I'm as tired as Dad was this afternoon. Come on, I'll race you back to the house and then we must go to bed and get some rest.

The five-day period, during which our subject had to remain in a state of suspended animation, passed slowly enough, but it finally passed and we reassembled in the laboratory. Eileen's hand trembled as she threw the switch that cut off the current. The girl trembled slightly and opened her eyes.

"You may rise now," said the Doctor. "The experiment has been successful and you are quite all right.

The girl sat up with a little difficulty and looked around.

"What is the matter with my eyes?" she asked suddenly. "My skin looks green to me."

"It *is* green," said Eileen with a forced laugh.

"Oh," exclaimed the girl as memory returned. "May I have a mirror, please?"

Eileen handed her a mirror and turned away. Miss Erickson looked long and earnestly at the reflection of her ghastly face and then smiled faintly.

"Will every one look like this soon?" she asked.

"I trust so," replied the Doctor. "How do you feel? Perfectly normal?"

"I feel all right, except that I am rather weak," she replied, "and I have an overpowering desire to go and sit in the sun."

"That is quite natural," said the Doctor. "You see, you now partake more of the nature of a plant than of an animal and an abundance of sunlight is doubtless essential to keep up your vitality. Go out and sit in the sun. No, don't clothe yourself, the sunlight must fall on your skin. Drink plenty of water and should you feel hungry, try eating a little soil. For a time you will wish other food, but eventually, I believe that the appetite will pass and that you will subsist on soil and the constituents of the atmosphere alone."

DESPITE her statement that she felt all right, it was evident that Miss Erickson was pitifully weak and I slipped my arm around her and half led and half carried her out into the sunlight.

"How good it feels," she murmured as she threw herself down on the green turf before the door. "Let me rest a little and I think that I'll be able to think more clearly. Things seem rather confused right now. I suppose that I must be acquiring a plant's point of view of the world."

I left her and returned to the laboratory and reported her words to the Doctor.

"I presume that she is right," he said reflectively. "It might be a good plan to observe her for a few days before we go on with our experiments. Still, I don't want to delay any more than I have to and she seems to be perfectly normal. We had better get on with our work; the accumulated impressions of the whole group will be of much more value than any observations that could be made on an isolated case. Eileen, you and I will put on our operating hoods, while Harry gets the next subject ready."

It was a long and arduous task to transmute the blood of the twenty-eight other subjects, but it was done in time and the green bodies were laid out in a row in the laboratory in a state of suspended animation. The last one to be operated on was a Doctor Holmburg, late Professor of Botany at the University of Teheran. His mental index was 4.29 and he was altogether a superior specimen. He was less than forty and just entering the prime of life, but unfortunately a cardiac weakness had developed that limited his years of life to fifty at a maximum and had caused him to be placed on the defective list, lest he should procreate and transmit his weakness to his posterity. He conversed with us very cheerfully as he prepared himself for the operation.

"It is an interesting experiment," he said with enthusiasm, "and I am very glad to be able to assist in it. The idea of having my nature changed to that of a plant is of the greatest scientific interest to me. I trust that I will be able to use the experiment to solve some of the perplexing problems of botany that are before the world at the present time."

"I appreciate very much your cordial co-operation," replied Doctor Murgatroyd. "It will be a great benefit to us to have as highly trained and intelligent an observer as you are among our subjects, and I am sure that your assistance will be of the greatest value. Now will you assume a reclining position so that Doctor Wilbur may draw your blood?"

During the five days that elapsed before we could start restoring the bulk of our subjects to conscious-

ness, Doctor Murgatroyd tried in vain to fathom the mental processes of Miss Erickson. The physical phenomena which she exhibited are easily cataloged. She could assimilate soil and could easily subsist on a diet of soil, air and water with the aid of plenty of sunlight, but strange to say, she preferred a meat diet and would rather have it raw than cooked. Her mentality was not at all impaired as shown by the daily index readings which we took; in fact, it rose slightly, but her moral index showed a rapid downward trend. It was evident that profound changes were going on in her physical structure, for when we tried to take a physical index reading, the figures we obtained were absolutely meaningless. The Doctor puzzled a good deal over these facts.

"I will be very glad when Professor Holmburg is restored to wakefulness," he said after an exhausting half hour with Miss Erickson. "I believe that he will be able to shed some light on the matter."

"I hope so," replied Eileen, with a shudder. "It is dreadful to think of that poor girl's moral fibre going to pieces daily, while we stand by, powerless to help her."

"Something must be sacrificed for the cause of science," replied the Doctor sententiously.

The days of waiting passed and one by one we restored our twenty-eight subjects to consciousness and led them outside to lie in the sun and recuperate from the strain of five days of suspended metabolism. Professor Holmburg was, of course, the last to be revived. When the current was snapped off, he sat up and looked around in a semi-dazed condition. His eye fell on Doctor Murgatroyd and he smiled.

"When are you going to start, Doctor?" he asked.

Doctor Murgatroyd silently handed him a mirror. He took it and looked at his reflection in a puzzled manner, rubbed his eyes and looked again. Suddenly a realization of his condition passed over him and he struggled to his feet.

"It has been a success," he cried jubilantly, wringing Doctor Murgatroyd by the hand. "Let me congratulate you on the successful outcome of the most daring experiment of the age. Are the others all right?"

"Perfectly all right," replied the Doctor. "I cannot tell you how much relieved I am to have your assistance in interpreting the results. The first subject has given us some uneasiness, but with your help, I hope soon to understand the changes that she has undergone more thoroughly."

"Just what seems to be the trouble?" asked Professor Holmburg.

"You are hardly in shape to go into details just now, Professor. You had better go out and lie in the sun for a few hours. Later we will discuss it and I think that you may be able to help me very materially. Will you join us at my bungalow this evening and help me outline our further plans?"

AFTER supper we sat on the screened porch surrounding the bungalow, which had been constructed for Doctor Murgatroyd's use during his stay at Kahoowale, listening to the murmur of the waves lapping the near-by shore. The Doctor was sitting silent and motionless, apparently in a state of semi-stupor resulting from the stirring events of the day. Eileen and I were talking in an undertone, planning our future home which we had decided to locate on my estate in Maui, just beyond the Alalakeiki channel which lay before us. There was a step on the walk outside and a cheerful voice sounded out of the darkness.

"May I come in?"

"Come in, Professor Holmburg," cried the Doctor as he sprang to his feet and opened the door. "We were all anxiously awaiting your arrival."

"I fancy so," he replied with a laugh as he entered, "especially Miss Murgatroyd and Doctor Wilbur. I had no intention of eavesdropping, but sound carries well on a dark night like this and I couldn't help overhearing a little as I approached."

His cheerful laugh rang out again and Doctor Murgatroyd hastened to turn on the lights. Professor Holmburg was faultlessly dressed in white flannels and but for his green cast of countenance, which was not nearly as evident under the artificial light as it had been during the day, he appeared no different from any other man of his age and station in life. For a few moments we talked lightly of the happenings in the world and the beauties of our island home. Presently his face grew grave and he turned to the Doctor.

"Doctor Murgatroyd," he said, "may I see the record cards of Miss Erickson, your first patient? I had quite a talk with her this afternoon, but before I venture any opinion, I wish to learn all that I can about her. Have you index readings both before and after the operation?"

"I have the index cards for her whole life," replied the Doctor. "Come into the sitting room. I have brought all the records up here in the hope that you would feel well enough to go over them with us."

We adjourned into the sitting room and the records of Miss Erickson were spread out before Professor Holmburg. He perused them carefully, reading over twice the index records of the case for the week preceding the operation and all the records made since that time. When he had finished, he sat for a while in deep thought.

"These records bear out my observations," he said at length. "I am glad to have exact records to study before I speak, as it was possible that the changes which I observed had taken place in myself instead of in her. Miss Erickson has not suffered mentally at all by the change in her blood; in fact, she has improved slightly. Her physical readings are meaningless and her temperamental indices, while variable, average up fairly close before and after. Your instruments, however, bear out the profound change which I noticed today, namely, that her moral tone is markedly lowered."

"Did you notice it so soon?" asked Eileen in surprise.

"I couldn't help but notice it," he replied, "it was thrust on my attention. Your records show that she has sought to hide it from you, but to me, she openly displayed a moral degradation that would make me think that her index was even lower than you have recorded, although it is as low as the average moral defective by your readings. She apparently thought that I was on a moral level with her and she tried the crudest kind of seduction and uttered several palpable falsehoods without reason. It is a peculiar thing. Have any of the other subjects shown the same tendencies?"

"Enough time has not elapsed for me to determine," replied Doctor Murgatroyd. "Harry and I are going to take a set of readings in the morning. We would appreciate it very much if you would attend and help us."

"I will be more than delighted," he replied. "I will watch my own readings with especial interest. Since there is nothing more that we can do to-night, I will not trespass longer on your time. I will go back to the dormitory and continue my observations."

"Stay and we'll play cards," said Eileen. "We all need some relaxation, and I'll try to get some refreshments together later on."

"That is very kind of you and I will be delighted

to remain for a while," he replied, "but as for refreshments for me, a handful of good top-soil will be a full meal, thanks to your father's genius."

Despite his predictions, when Eileen served the refreshments, he did full justice to the cold meat that formed part of it. He ate very sparingly of the vegetable and grain components of the meal.

"It is a peculiar thing," he said meditatively, "vegetables and plant products seem to be very repugnant to me as articles of diet. I presume that it is because I am partly plant myself now. I seem to crave meat and I am ashamed to confess that it would suit me best raw."

Eileen, the Doctor and I exchanged significant glances, but said nothing. Shortly afterwards Professor Holmburg excused himself and returned to the dormitory, where all the subjects were quartered.

NEXT morning in the laboratory, he was of great aid to us in the prosecution of our work. The results that we obtained were rather indeterminate and we soon abandoned our labors for the day. A busy week passed, the four of us working ten hours a day, taking index readings and cataloging them and observing our subjects. At night we would confer over our results and plan our next day's work.

"It is time that we paused and reviewed our data to date," said Doctor Murgatroyd one evening. "Professor Holmburg, you are most vitally interested; suppose you give us your ideas first."

"I am glad to do so," he replied. "My case is almost an exact parallel of the others and by detailing the changes that I have witnessed in myself, we may arrive at a clearer idea of the changes that are going on than we should if we tried to digest the data on all the cases. To begin with, my physical nature has so completely changed that the index readings made by Dourget's method have no meaning, and so far we have devised no new method that tells us anything. Temperamentally I have changed from a steady reading of 7-c-xx-4-r to a series of readings that vary quite a little but average about my previous reading. I have grave doubts of the accuracy of these readings. Mentally, I have shown a steady improvement, totalling altogether .0621, a tremendous increase, equal almost to a year of mental growth in only nine days, an unprecedented happening in the annals of science. Morally, however, I have dropped from 8.963, an unusually high figure, to 5.42, slightly below the average level of all mankind.

"So much for scientific figures. Now for my feelings. Physically I feel in splendid health, but I have a great desire for sunlight, a perfectly natural craving when you consider that my blood contains hemaphyll instead of hematin and that sunlight is necessary for my metabolism. I can subsist on water and air and a small amount of mineral matter, but I have a craving for meat, raw meat. The same is evident in all of our subjects. The only logical conclusion to draw is that we belong to the order of meat-eating plants, characterized by the flycatcher of Madagascar.

"The most striking change has been in my moral feelings, if I may call them so. On the first day that I was restored to consciousness, I was acutely embarrassed by the presence of Miss Murgatroyd when I was unclothed, although my scientific training allowed me to overcome it. To-day, I would feel little, if any, embarrassment. I feel strong tendencies at times toward prevarication and to-day as I was leaving the laboratory, I secreted a knife in my garments and was about to take it with me, when I suddenly realized what I was doing. It is evident that my mental power has so far held my moral balance true, but there is no telling when it may tip.

"You have not been in the dormitories lately. It is advisable that you do not go. Every one of your subjects has become a moral degenerate. The males and females have invaded each others' sections of the building and thievery, lying and promiscuity are the order of the day. Doctor Murgatroyd, your experiments have been a failure. You have solved the problem of food supply in an admirable manner, and your method is one that would retain or increase the mentality of the world, but it would change mankind into a race of degenerates that would be below the status of the savage tribes of the nineteenth century.

"The question that now arises is this. Can you reverse your process and change these unfortunate plants back to human beings? If so, I would advise starting on it at once, before they get beyond your control."

"I have never experimented along the lines that you suggest," replied Doctor Murgatroyd, as Eileen and I nodded agreement with the statements of Professor Holmburg. "I am inclined to agree with you in everything that you have said, yet it is a hard thing to give up the dreams of half a life-time. Are you sure that you are right in all of your observations?"

"I am morally certain; perhaps I had better say that I am mentally certain; my morality is not to be depended on. Things are even worse than I have told you. Your subjects are rabid meat eaters. To-day Miss Erickson, who is the farthest along the decline we are all on, caught a young mongoose and eagerly tore its throat and drank the blood and then devoured the body. Two males tried to take it from her, but she fought them off with snarls like an enraged cat. I confess with horror that I was strongly tempted to join them in their attempt at robbery.

"Worse even than that, there is some plot going on in the dormitory that I have not been able to fathom. They do not entirely trust me, due to my intimacy with you. I most strongly advise that you start experiments to-morrow leading to the reversal of your process and if you are not soon successful, I would recommend that I and the other unfortunate results of your tests be mercifully eliminated. In the meantime, I will, to a certain extent, cease my intimacy with you and will try to get at the bottom of the plot that I am sure is brewing. Will you not radio to-night and have your assistants returned in the morning from Oahu?"

DOCTOR Murgatroyd rose and sighed heavily.

"I am an old man," he said, "and the wreck of my dreams is a bitter blow, but you are right. I will send off the message recalling my force at once."

He left the house and started for the building where our transmitting set and the master receiver were located. In a few minutes we heard his footsteps approaching rapidly. We jumped to our feet and met him at the door.

"The transmitting set and the receiver are gone!" he announced.

"Gone!" I ejaculated in surprise.

"Gone," he replied. "Completely gone. Not even a spare vacuum tube is left."

"There is no question as to who is responsible," said Professor Holmburg grimly. "I suspected something of the sort, but thought that it would be delayed. What is your communication schedule?"

"We have none," I replied. "We receive on the general broadcasts and on our own wave from Geneva and Peking, but we have no set sending schedule. It may be several weeks before our silence alarms anyone."

"That is worse than I thought," said the Professor. "Have you any weapons?"

"Weapons?" asked Eileen in alarm.

"You may need them," he said soberly. "I can't tell you what this may mean. Have you any?"

"I have a pistol," I replied, "and I think that there is a shotgun in the laboratory building, but I am not certain. Those are all that are on the island, so far as I know."

"Get your pistol and carry it," he said to me. "The laboratory is a solid building with vitriolene windows and it will stand a long siege from anyone not equipped with disintegrating ray machines. Go there at once and barricade yourselves. I will go out and see what I can find out and return if I think that I can do any good. If I am not back inside of three days, be careful about letting me in. At the rate my moral fibre has been going, I may not be safe much longer."

He hastened out of the house and with a murmured word of apology, I hastened to my room and put my automatic pistol into my pocket, first assuring myself that it was fully loaded. On my return, I found Eileen and her father in an argument.

"I really don't think that it is necessary to move to-night," she was saying. "If we wait until morning, we can gather together things that we want and go——"

Her voice trailed off into silence as I entered and I followed the direction of her gaze. Just outside the screen stood one of our subjects, looking into the house with an expression of fiendish hate on his features. The green lips were working avidly and the look of murder was in the eyes that stared into the room. I drew my pistol and taking careful aim, fired. I am a dead shot and the range was short and I would have bet ten years of my life that I struck him square between the eyes. He did not fall as I confidently expected he would, but instead turned and ran at top speed from the house. I leaped to the screen, intending to fire another shot at the retreating figure, but the darkness had already swallowed him up.

The incident stilled Eileen's doubts as to the advisability of an immediate move and we hurriedly gathered up such of our belongings as seemed most essential and prepared to depart. None opposed our departure and we covered half of the four hundred yards that separated us from the laboratory without incident. Then, without warning, the huge flood lights that were arranged to light the entire ground as light as day sprang into full radiance and from all sides, the plant men and women came toward us.

"Good evening," said the Doctor quietly to the first one who approached.

Miss Erickson, for it was she, made no reply but sprang suddenly at him and throwing her arms and legs about his massive frame, sought his jugular vein with her teeth. I leaped to his assistance and tore her loose from her hold, but by this time others were at hand. I fought myself free for a moment and drew my pistol. Miss Erickson leaped at me and I shot her square between the eyes. She hesitated for only a fraction of a second and then came ahead again. In alarm, I fired the remaining five shots through her body—without effect. As she threw her arms around me, I struck with all my force at the point of her chin. The blow went home true and hurled her back, but the blow that should have knocked out a heavy man had no apparent effect on her and she closed again.

By this time, others were attacking me from the rear and I was pulled down and held helpless. From where I lay I could not see what was happening to the Doctor but I saw that Eileen was down and being held. I made a desperate struggle to go to her assistance, but my assailants were too numerous and I lay quiet for a moment, husbanding my strength for another attempt.

There was a babble of excited talk from the plant men and women and the smell of raw hot blood struck my nostrils. With cries of hunger, my captors released me and dashed toward the spot where the Doctor had been pulled down. I staggered to my feet and ran to Eileen's assistance, but before I had reached her side, her captors had joined mine in the mad rush toward the Doctor. I turned to his assistance, but strong hands gripped me from the rear. I turned to strike but saw in time that it was Professor Holmburg.

"Come," he said quickly. "Doctor Murgatroyd is beyond your help or mine. You and Miss Eileen run for the laboratory at full speed. I'll try to guard your rear as you go."

A glance toward the Doctor's body showed me the accuracy of Holmburg's statements and I turned to Eileen.

"Come quickly," I gasped. "Your father is dead, but we may save ourselves."

SHE made no answer, but tried to go to her father. I grasped her by the arm and strove to draw her away. She fought me like a tigress, but Professor Holmburg came to my aid and together we half dragged and half carried her toward the laboratory. We had gone perhaps a hundred yards before our departure was noticed. Then arose a hue and cry behind us and we saw that the plant men and women were in hot pursuit.

"Faster, Professor," I gasped.

I heard his teeth close with a snap and he increased his gait. Eileen had ceased to hold back, but her speed was not equal to that of her pursuers. The start we had obtained, however, proved ample and we reached the laboratory door fully thirty yards ahead of our nearest pursuer.

"Knock me down and then drag me inside the door," muttered the Professor.

I did not realize the purpose of the move, but obediently struck him with my full strength. He staggered and fell and I seized him and dragged him inside the door, closed it and bolted it almost in the face of our nearest pursuer. The Professor sprang lightly to his feet.

"You sure can use your fists, Wilbur," he said with a smile. "Add another to your observations, a blow has no effects after your operation."

"Neither has a pistol bullet," I replied as I snapped on the switch. "Do you think that this place is safe?"

"You have vitriolene windows that will stop anything and that door is good against anything short of a disintegrating ray or heavy artillery," he replied. "I don't think there will be any trouble to-night. Let us join Miss Murgatroyd and take counsel."

"What happened to Dad?" was her first question.

"I am afraid that he is beyond help," replied Holmburg gently. "I can't tell you all the details to-night, but my warning came too late. The flesh appetite developed faster than I thought it would and he has paid the penalty for trying to better nature. Miss Murgatroyd, you must restrain your grief for the present. Don't you realize that you have turned loose a grave menace on the world? These creatures you have created are wholly devoid of any moral sense; they are flesh eaters and no ordinary means will kill them. A pistol is useless, as Doctor Wilbur learned to-night. We are cut off from communication with the rest of the world and we must solve the problem and save mankind without assistance."

"They aren't all degenerates," I broke in. "You saved both of us to-night."

"So far my superior mind has enabled me to realize what was happening," he replied, "but before you go to sleep to-night you must either tie me or turn me out. I am afraid to trust myself. The reason that I told you to knock me down and drag me in here was to avert suspicion. I will say that I was dragged here, in case you decide to turn me loose."

"What do you think is the best solution?" I asked.

"Turn me out," he replied. "Here I am only an added source of worry and danger to you. Out there, I am at worst, only another one added to your enemies, and if I can hold up, I may be able to aid you. Start at once on experiments that will enable you to reverse Doctor Murgatroyd's devilish process. It is your only chance. When you have the problem solved, signal me by hanging a red streamer out of an upper window and if possible I will come to you for experimentation. Now I will leave. Don't open the door, you don't know who is outside. Throw me out of an upper window; it won't hurt me, as you found out to-night."

We carried out his suggestion and threw him out of an upper window. As he fell, others of the plant people sprang toward him, but he leaped lightly to his feet and joined them in apparent friendliness. The group talked together for a few moments and then went off in a body. In a few minutes the flood lights died out and the ground was in darkness.

I gave Eileen a small dose of an opiate that was in the medicine cabinet and in a few moments her regular breathing assured me that she was asleep. I kept watch the rest of the night and with the aid of an electric hot plate prepared breakfast before I called her.

"Don't speak of last night," were her first words to me. "I must keep my mind away from it or I can't work. And Professor Holmburg is right. The safety of the world depends on our efforts and we must get to work at once. I'll grieve for Dad later, when I have time. Right now, I would give anything to have his genius here to direct my work. Fortunately, I have been his principal assistant since the start of his experiments and I have some idea of where to start. We'll eat something and then get to work."

After breakfast, she started me assembling apparatus and she began the first of the long list of experiments that occupied her waking hours for the next four months. In an hour, I was making blunders and she looked at me keenly.

"Did you sleep last night?" she asked.

I admitted that I had not and she at once forced me to lie down and take a little rest. I was so tired that I yielded without protest and slept the balance of the day. It took us several days to get our routine established, but we soon did so and worked unremittingly. My previous training under her father proved its value and I was soon able to do most of the things that she required and our work went on apace, although for some time, our experiments were barren of any results that could be called at all encouraging.

We saw nothing of the plant people for the first two weeks of our imprisonment. While we were closely confined to the limits of the building, we had no particular fear of their forcing an entrance. The windows were glazed with half inch vitriolene slabs; while they admitted light with no retarding action even on the ultra-violet rays, they were impervious to assault from anything short of a disintegrating ray or high explosive in large quantities, neither of which the plant people possessed. Ventilation was taken care of through openings covered with vitriolene gratings. There was a large water tank in the building that was half full when we entered and the rains would more than serve to keep it brimming over. The question of food was a little more serious, but an inventory showed that we had enough compressed rations to last the two of us a little more than a year and enough vitamine tablets to last for twenty years.

OUR first hope was that the Sub-committee would be alarmed by the silence of our radio and would order an investigation, but as the days slid by into weeks, we realized that for some reason they were not. We had no idea of the real reason that prevented an investigation at that time. Our first intimation that something was wrong came after a month of imprisonment, when we were aroused from our work by the drone of a plane directly overhead. We soon identified it as one of the large transport planes that had formed part of our equipment and we shouted with joy at the prospect of rescue, or rather of assistance, for we had already resolved that we would not leave Kahoowale until we had rectified the tragic error that Doctor Murgatroyd had so unfortunately made. The plane soared over the laboratory and swung down to a landing in the field about half a mile away. I rushed to the door, but Eileen held me back.

"Wait, Harry," she cried. "Come up to the window and watch what happens. The normal crew of that ship is only four men and six of us would be no match for the plant people if they attacked. If the crew can win to the door, we will let them in, but if we go out to meet them, we may all be lost and our loss would mean the loss of all mankind."

Her advice was so manifestly sound that I obeyed her without question and we ascended to the upper floor to watch the landing. The plane came to a perfect stop and two of the crew alighted. They looked around in surprise and just then we saw the plant people. In a body they approached and shook hands cordially with the crew of the plane. Through a pair of binoculars I could plainly discern that the leader of the plant people was our erstwhile friend, Professor Holmburg.

After a few moments of friendly colloquy, the plant people swarmed into the plane and assisted the crew to unload it. When the unloading was completed, the entire crowd started for the laboratory, apparently in perfect amity. As they came nearer, it was evident that the plant people were craftily crowding the crew in such a manner as to separate them from one another. They were within two hundred yards of the laboratory and we were vainly trying to signal them when the attack came. In answer to a prearranged signal, the plant people threw themselves on the doomed crew and dragged them down, almost unresisting. I cannot describe the ghoulish scene that followed, but Eileen and I were forced from the window weak with horror and sick at heart as we realized the full force of the menace that we had turned loose on an unsuspecting world. Did I say the full force? I am exaggerating, if I did. The realization of the full force came later, with unexpected horror. At that time we had only a dim realization of what we had done.

We saw nothing more of the plant people for a week. At the end of that time, we again heard the roar of a plane motor and we hastened to the window, hoping that the disappearance of the first party had roused suspicion and that war planes were being sent to investigate. A glance from the windows showed us our error. The motor that we heard was the transport plane that had landed the week before taking off. It rose rapidly in the air, circled the landing field and straightened out on a course toward Maui.

"Where are they going?" asked Eileen.

I did not answer. An idea of the horror of the situation came dimly to me and I turned away, sick at heart. An hour passed and we heard the roar of the returning ship. Slowly and majestically it sank to a landing and to our horror, discharged a cargo of a dozen luckless humans, doomed to make a feast for the plant people.

There was nothing that we could do; nothing to save the doomed prisoners and no way to warn the world of the horror that camped on Kahoowale. We tried spreading signals on the laboratory roof in the hope that they would be seen by one of the passenger or mail planes that occasionally flew over the island, but we were soon forced to abandon these attempts. The plant people kept a close watch on our movements and removed the signals almost at once. After our second attempt, they kept one of their number on guard on our roof and we did not dare to open the vitriolene gratings lest he should make his way in and summon others to his aid. Our only hope was through the success of Eileen's experiments and we threw ourselves into them with feverish activity.

Weekly or oftener the huge transport plane took off, each time returning with a load of captives and each time the grisly feast was repeated with all of its attendant horrors. We soon learned the inadvisibility of watching the landings and devoted all our waking hours to our work. Eileen's method of attack was simple enough. We had an abundance of rabbits and other animals, whose blood had been transmuted by her father before his tragic end to experiment with, and it was on them that she labored. The blood, or more properly, sap, would be drawn from its veins and experimented with. A number of times, she succeeded in turning the green fluid into a red one, but each time when it was returned to the veins of the rabbit or guinea pig, one of two things happened. Either the rabbit died outright, or more often, it would be sick for some days and then return to its former condition of a moving plant. Apparently the plant form was hardier and more persistent than the animal form.

THE strain began to tell heavily on Eileen. I warned her to guard her health as I would be helpless to carry on the work without her guidance, but she would not heed me and often after we had retired for the night, a noise would awaken me and I would find her in the laboratory bending over test tubes, trying out a new idea which had come to her in the watches of the night. Never did man or woman labor more faithfully for the salvation of the world than she did and yet it was the irony of fate that I should stumble on the solution through a mere accident.

We were repeating, with meticulous care, an experiment that had offered rather more prospects of success than had many others. The rabbit on which we had first tried this method had remained in a semi-animal state for nearly ten days before reverting to the plant state, although it never did get to the point of eating its normal vegetable diet. We had taken another especially healthy specimen and withdrawn its blood. Eileen had transmitted the hemaphyll into a substance that was closely related to hematin, although not identical with it. I was preparing to inject the blood mixture into the rabbit's veins, when a piece of glass tubing broke in my hands, cutting a small artery in my palm. The blood spurted forth and a few drops of it fell into the prepared rabbit blood. As the two mingled, my great idea was born, and without saying a word to Eileen, I allowed an ounce of my blood to flow into the mixture before I staunched my bleeding.

Five days later, when we shut off the current of the suspended animation apparatus, a typical white rabbit with pink eyes and nose hopped forth and sniffed eagerly around. With trembling hands, I offered it a few grains of corn that were handy. The rabbit sniffed for a moment and then with every indication of eagerness devoured them and looked around for more. I staggered back, the tension of my feelings suddenly relieved, but I was recalled to myself by the sound of a body falling. The strain had been too much for Eileen and for the first time in her life, she had fainted.

Eileen was forced to keep to her bed for several days while I attended the rabbit and brought hourly reports to her bedside. There was no doubt that our experiments had at last been successful. The rabbit's appetite for vegetable matter increased daily and after the third day, it would turn away in disgust from the meat which it had voraciously devoured while it was a plant.

The good news did more toward Eileen's recovery than any medicine could have done and in a week she was up and around, almost her normal self. I admitted to her what I had done and she heartily approved and congratulated me prettily enough on what she called my genius, but which no one can help but ascribe to the merest accident and luck. Before his departure, we had arranged with Professor Holmburg as to the signal we should display as soon as we had met with success, and it was with glad hearts that we hung a red streamer out of an upper window. I was rather dubious about his return, in view of the scenes we had observed him participating in, but Eileen still had high hopes.

Two days passed before we heard from him, although with our glasses, we had seen him meet the plane returning from one of its periodic trips and to our horror, participate in the grisly feast that followed. Even Eileen began to lose hope and to admit that we had probably found our solution too late to save any of the unfortunate victims of her father's genius. The evening of the second day, a knock sounded at the laboratory door.

"Who is it?" I asked through the speaking tube.

"Holmbufg," answered a hoarse voice. "For God's sake hurry and let me in. The others may be here at any moment."

CAUTIOUSLY I unbolted the massive door and swung it open enough to admit him, my hand trembling on the compound lever that would close it again against the weight of fifty men, were treachery meant. He slipped in as the door opened and I slammed it shut behind him and shot the massive bolts. As the lights flashed on, I recoiled in horror.

I would hardly have known him for the same man that had so suavely sat as our guest at the Doctor's bungalow four months before. He was naked and soiled and his skin had lost its animal characteristics and looked like bark. His hair and beard had grown to immense length and to my horror, it had turned green and resembled shaggy moss.

"Bind me hand and foot instantly," he panted as he glared at me, the light of madness in his eyes. "Hurry, man, I am holding myself for a moment, but I may relapse at any instant."

Seizing a rope from the table behind me, I complied with his request and soon had him bound securely. As a further precaution, I strapped him on an operating table.

"Have you been successful?" he asked.

"Completely so," I replied, "and we are ready to restore you to your former human state at once."

"How did you find it?" he asked.

"It was a fortunate accident," I replied. "I accidently mixed blood from my veins——"

"Blood!" he howled, the human ascendancy vanishing like a flash. "Human blood! It will do anything. It keeps us strong and mobile! Blood! Ahhh—"

His voice trailed off into a meaningless gibber and Eileen and I looked at him in horror.

"Let us operate at once," she exclaimed. "There is no time to lose to remedy the terrible effects that the change has had on him."

I agreed with her and hastened to bring out the apparatus which we had used to draw the blood from his veins months before. The question arose as to which of us should contribute blood toward his salvation and how much should be contributed. Each of us was eager for the honor, but Eileen was not strong and she finally admitted the force of my argument and agreed to limit her contribution to a pint, while I was to draw four pints from my veins. Such a loss would have been fatal a century and a half before, but since the perfection of synthetic blood, it has been possible to draw even a larger amount than this from a normal healthy man, replacing it with synthetic blood with no apparent ill effects other than a slight nausea and semi-arrested metabolism for a few days.

Despite the struggles and howlings of the Professor, we bound him more firmly to the table and attached the pump and drew the horrible green sap from his veins. Eileen took it back to the laboratory to work on and returned in twenty minutes with the vessel containing a bright red fluid. I ascended another table and she drew four pints of blood from my veins and mixed it with the fluid she had prepared and then pumped synthetic blood into my veins to restore the normal vein content. I did the same for her, mixing her blood with mine and the fluid prepared from the sap we had taken from Professor Holmburg. We attached the pump and slowly forced the mixture into his circulatory system, withdrawing the synthetic mixture which we had first introduced. As the vessel emptied and the red fluid began to flow from his body, we stopped the pump and reconnected the severed vein and Eileen threw the switch that put him in a state of suspended animation.

The five days of waiting passed slowly enough but all the signs were encouraging and it was with some measure of confidence that we turned off the current and restored him to consciousness. He looked around him in a dazed manner. Recollection suddenly came to him and he struggled to rise, looking about eagerly. I unbound some of the straps that held him and Eileen handed him a mirror. We had shaved him and cut his hair while he was unconscious and during the five days, the green cast had faded entirely from his face and his skin had lost that peculiar bark-like appearance that had characterized it. Long and eagerly he gazed into the mirror and then fell back with a sigh.

"Successful," he muttered. "I will die a human being.

"Die?" I exclaimed, "Nonsense! You will help us to restore the rest of these unfortunates."

"Hand me a stethescope," was his reply.

I handed him one and he adjusted it and listened critically to his heart. He handed me the instrument and motioned me to do likewise. I listened and drew back in dismay. His heart was pounding and grinding like a rusty engine.

"You can see what I meant," he said with a ghost of a smile. "I had a pronounced cardiac weakness before the experiment started and I was sure without listening that my heart would never stand the strain that has been put on it. My friends, your work is just starting, for you will find that none of the others will submit to an operation and you are not in sufficient force to capture one of them. They are now over a thousand strong and in another month, they will number tens of thousands, and be ready to attempt the conquest of the world that they plan."

"Tens of thousands?" I exclaimed in amazement. "How is that possible?"

"Seeds," he replied simply. "About two months ago, we found that the normal animal rate of increase had stopped and that the females were producing hundreds of seeds monthly. These seeds take only about two weeks to germinate and once sprouted, they grow to maturity and mobility with amazing rapidity. Some of the newly sprouted females show evidence of reaching the seed bearing stage in three or four months, and when the second generation starts to produce, no power on earth can stop them. You must work with great rapidity."

"What can we do?" I asked in horror at the revelations he had made. "There is no way to escape and warn the world. We had hoped that our radio silence would cause an investigation, but it has not done so."

"There has been no radio silence," he replied. "They have your sending set and are sending daily messages to the Sub-committee reporting progress. They called the plane that landed. The world believes that complete success has crowned your experiments and plans are being made to dispatch members of the Inter-racial Committee to be your first subjects. Even were the world warned, what could they do? Human weapons seem helpless."

"If sufficient force were mobilized, it seems that something might be done," I said.

"Bullets have no appreciable effect on them as you have seen. If one of the plant people were dismembered, each segment would grow into a complete plant in a few weeks with all the characteristics of the original. Fire may destroy them and a disintegrating ray might solve the problem, but it would need a world-wide holocaust to make fire successful. There are millions of seeds in existence now. The ray is slow and hard to work and all the ray machines in the world would not keep up with the rate of increase."

"Then the world is doomed?" broke in Eileen.

"I hope not," he replied. "I have an idea that may save it, if my life is spared for another week. Doctor Wilbur, will you attach a revigorator to me with a switch in such a position that I may snap it on at a moment's notice? Also put an ozone tank close at hand for use if needed. I will lie on this table and direct your work. I could work faster, could I do it personally, but I do not dare to risk the exertion and you must be my hands."

We hastened to comply with his instructions and then asked what we were to do. He thought for a moment and then spoke slowly, choosing his words with great care.

"Do you remember Mitshumi's disease that threatened to rid the world of certain species of plants some sixteen years ago?"

We remembered the time and it flashed across both of us that it had been Professor Holmburg who had developed the anti-blight which destroyed the malignant fungus growth that had so alarmed mankind. He smiled as I mentioned the fact and went on.

"There are specimens of Mitshumi's fungus bottled in this laboratory," he went on. "Get the bottle and bring it here."

A short search revealed the sought for article and we displayed it to him.

"Good," he said. "Innoculate one of your plant rab-

(*Continued on page* 111)

The BEAST-MEN of CERES

By Aladra Septama

THE grave face of Severus Mansonby, Interplanetary Investigator, was heavily clouded as he waited in the private office of his central headquarters, whose various ramifications spread over the entire 178th floor of the huge Atlantic Building. His hands clasped behind him and his keen eyes bent thoughtfully downward, his tall, athletic figure strode to and fro, to and fro. Occasionally, as he came to a window, he would pause to glance absently at the mazes of the giant city that stretched far out of sight in all directions; or at the signals that lined out the crowded air lanes; or at the craterlike excavation more than a half mile sheer below him, in which the basements and sub-basements of the 250-story structure that was to cover four entire city blocks were being set in stone cement and steeled to withstand the centuries.

He had all preparations made to board the Martian Flyer, due out from Venus in a few hours, and had hurried back from the Pacific Coast to New York, urging his small aerocar to its full 500 miles an hour. His aerial coupé waited on the landing platform just outside his office door, to whisk him up to the aerial stations, five miles above New York City.

The Martian Flyer would pause there briefly; there would be a lightning leap to Paris, where his fascinating and altogether adorable Parisian mate would get aboard; and then the Flyer would head out into the ether and drop like a plummet toward the Red Planet.

He had not visited his office on Mars for a long time, and Maltapa Tal-na, his chief operative on that planet, had been sending in urgent etherograms for weeks.

And now, at this most inopportune moment, had come the startling message from Calder Sanderson, the famous scientist, telling of the disappearance of his wife, Therma Lawrence, under circumstances as weird and astounding as could be hatched from a fevered midnight dream

Riding with her husband over northern central United States, sitting and talking side by side, she had vanished from in front of his eyes. She had not fallen from the aerocar; she had simply faded from sight, like a wisp of mist in the morning sun.

HERE is an extraordinarily good interplanetarian story, charged with science, adventure and strange romance. There are so many new things contained in its pages that it would be difficult to point out all of them to anyone. Yet, it will be found uniformly excellent throughout. The story in addition to the usual science part, is also charged with excellent astronomical data. It is one of those stories you will not wish to lay aside until you have come to the conclusion.

Quite apart from the amazing element of mystery, the matter was by odds too important to be ignored or left to even his cleverest operatives. Calder Sanderson was known all over the solar system for his outstanding scientific achievements.

It was he who had perfected the secret "key" radio, by which one might send a message impossible to intercept except by the one for whom it was intended. And he had proceeded to equip it with a delicate device by which, if the party were not at hand, the message would register for perusal at convenience. He was responsible, too, for the astonishing aerocar "trip register," which automatically charted the precise directions traveled and number of miles in each direction, and for good measure he had added an arrangement by which this record could be projected into a man's office or home, so that his whereabouts might be known in city or country, over ocean or desert.

And these were but playthings compared with Sanderson's more serious achievements. The latter comprised, among others, an entirely new principle of astronomical observation, not yet fully perfected, which it was expected would consign to oblivion the cumbersome, expensive, and inefficient old telescopes. They included, beyond this, a revolutionary method of focussing and intensifying the electro-magnetic and gravitational lines of force existing between planets into high tension interplanetary currents, which became lanes of terrific power along which flashed the lightning ether-ships, accelerated by atomic disintegration. He was said to be engaged in an incredible plan for the harnessing of the tremendous power of the long known, but not before utilized, Millikan, or Cosmic Ray.

HIS wife, Therma Lawrence, was the beautiful and universally beloved twenty-year-old daughter, idol and heiress of one of the greatest financial and industrial wizards the solar system had ever known. Octavus Lawrence was the owner of the giant 289-story Roosevelt Building, in the Albany District of New York City; he was the chief owner of the Solar Transit, whose innumerable ships flashed in an amazing network among all the planets of the inner circle—Venus, Mercury, Earth, Mars; and nobody knew the extent of his possessions on the various planets. Billions, or even trillions, would flow like water from the hand of that imperious, short-tempered martinet, where his daughter was concerned. Her mother dead, she was the only soft spot in his life.

Emphatically the parties to this astounding case were of import. But Detective Mansonby could not remotely suspect with what a personal and poignant interest he was to become invested in a few hours.

There was no help for it. The two weeks since Mansonby had visited his adored young mate might well lengthen into two more, or many more, before this unprecedented case was solved, and Therma Lawrence brought back—if indeed he could ever do it at all. The difficulties attending his task were such as had never before been met by any human being.

He paced restlessly up and down his office.

He paused in his stride to give a vicious jab at a button near the edge of his desk. "Paris!" he snapped grimly. Receiving his Paris radio connection, he gave a number, spoke the name of Signa Latourelle, and manipulated a small switch.

She turned sharply from me with an exclamation of alarm, and threw up her hands . Then she appeared to be wrenched upward out of the car. She gave a short cry, ending in a smothered gasp, and began to fade from my sight, as a picture fades from a screen.

In a few moments a bewitching girl seemed to stand against the very wall of his office, framed within a panel three feet by six. She gave him a sparkling smile and wafted an impish kiss from her delicate fingertips. Her dark eyes were full of roguish provocation. Her voice, low and caressing, vibrant and tender, thrilled him no less now than when they first mated three heavenly years before.

"Oui, cher ami? Et que veut-il?"

"Hello, dear. Why, I'm in a terrible mess, Sigma. I'm afraid we can't get that next flyer."

The beautiful face fell, and the tender mouth puckered reproachfully. *"O-o-oh! Mais*—my beloved, *nous n'avons pas*—we have not"—

The detective waved an understanding but helpless hand. "I know, sweetheart, I know; but something of transcendent importance has come up."

Her expression changed instantly. "But, of course, *mon cher*. Of course. It is all right." She spoke English with a precise enunciation. "He works so hard, does my beloved. I do not mind. Not the smallest bit. Not the tiniest. Other Flyers will be."

"I'm sorry little Frenchman. I'd rather disappoint all the rest of the Siderial System. But this is so tragically important!"

"It is all right, *mon cher*. Say not so much as one word. I will perhaps go to-night, then, for a little trip with a party. I am invited. There will be a score of us, mostly girls I know. Just a few of the so dear men, too"—her big eyes rolled with mischief.

Mansonby laughed fondly. "That's fine, honey. You do that. Have a good time. Ah! Here is my man now. *Au revoir, ma chérie. Je t'adore.*"

"Ah-h-h!" A roguish finger pointed, and the radiant image, wafting another smiling kiss, had in a split second returned to far Paris, whence it had been conjured as quickly. The detective sighed with a wistful shake of his head, and turned to his visitor.

Calder Sanderson's distinguished young face bore evidence of the ravaging strain he was under. Gravely he took the seat offered, and Mansonby summoned his chief operative, Cyrus Marlin, only a little less famous than himself. After introducing the two, Mansonby pressed a button that set in motion a delicate sound recorder and typewriter combined, which would reproduce, within a few seconds, in print, the message spoken into it.

"Now, Professor," he began briskly, "you gave me the salient facts over the radio, but for the benefit of Mr. Marlin here, as well as myself, I wish you would repeat it in minute detail. Remember, the smallest thing may give us a clue. Please omit nothing."

Professor Sanderson nodded, pulled himself together, and plunged into his story. "Miss Therma Lawrence and I were married two years ago here in New York, where she still resides at 18700 Roosevelt Building, number 75,900 Jupiter Drive, in the Albany District." He spoke the numbers clearly for the recorder. "I reside in San Francisco and we maintain a co-residence on Lake Superior, near the Canadian line. We had agreed to meet at the Passawampa Aerial Gardens for luncheon at noon today, and go for a day's outing, thence to our co-residence for a few days together. The Passawampa Gardens are an aerial resort over St. Louis, where"—

"Yes, yes, Professor, we know about them. Your wife met you there?"

"She did, and we lunched there. I stabled my own aerocar and we entered my wife's at—at 1:23. We proceeded northward"—

"Pardon me." It was Marlin. "You have the trip chart, no doubt?"

SANDERSON nodded and produced a small paper roll, which Marlin unrolled on the table. The detectives ran their eyes in silence over the charted route up to Miss Lawrence's arrival at Passawampa Gardens. Mansonby spoke, then, more to himself than to the others. "Stationary until 1:23—that's correct. Then northward 61 miles, north 14° east 113 miles, north 6° east—UM-m-m—I see. For what point were you heading?"

"We had agreed—it was a whim of my wife's—to take a general northerly course until we were ready to stop, when we would"—

"I see. You traveled on a northerly course until you were—let me see—you were nearing the Canadian line. Go on, please."

"At that point I found—I was driving—I found that the car had swerved unaccountably to a nearly northwest direction. I was powerless to direct our course."

The detective drew a red line on the chart northwesterly from the point of interference.

"Against our combined efforts," continued the Professor, "and Miss Lawrence is an exceedingly expert driver, I may say—we were drawn on to the end of your red line. We were still discussing the strange behavior of the car and trying to rectify our course. It had been raining for some time and now we encountered a very heavy storm. I endeavored to land, but I could not deflect the course. I could not land."

The detective nodded thoughtfully. "Ye-e-es. And then?"

"As I was about to say, I was looking directly into Therma's face, and speaking directly to her, when she turned sharply from me with an exclamation of alarm, threw up her hands, and seemed to be struggling with—something I could not see. Then she appeared to be wrenched upward out of the car. She gave a short cry, ending in a smothered gasp, and began to fade from my sight, as a picture fades from the screen. I endeavored to seize her, but it was useless. As my hands came about her waist, I felt something clasping her. It seemed furry—heavily haired, like an animal—but I felt nothing like clothing. My hands slipped down about her legs and her ankles and she was gone."

Sanderson turned his face away a moment, but soon had himself in hand and went on in an awed and grief-stricken voice.

"She simply disappeared, gentlemen—simply dissolved into air. I can put it no other way. She was beside me and then, without any visible intervention, she was gone. That is all I can tell you. It is altogether incredible. There had been no warning. She had seen nothing, heard nothing, although I do seem to recall dimly a light whirring, or rushing sound—but not like any engine or machinery—it might well have been the wind."

The two detectives had sat in alert silence during this stage of the recital, their eyes searching the speaker's face, hanging tensely on every word, their keen minds grasping, analyzing, weighing every syllable, as if they would wrest a something from them—a hidden something that the words themselves did not contain.

Mansonby spoke first. "Did you hear any sound of any kind after your wife's cry that ended in a smothered gasp? Think hard, now, Professor. There must have been something—some sound, or voice, from your wife, or—or the others."

Sanderson's face brightened. "Yes, I did. I heard—let me get it now. I heard my wife's voice—in a few seconds, as if coming from a distance. But there were no words—just a sort of short, sharp cry, or call."

Marlin spoke up with sharp eagerness. "That *other* sound, Man! That other sound! I can almost get it myself. Think a moment. Think!! It isn't conceivable that"—

"Wait! I did, yes. Now what was it? I heard"—he was speaking slowly, as if desperately trying to bring

back some elusive thing. "I heard very faintly—a voice or voices—but no words I could understand, and I have some knowledge of the chief basic languages of the solar system. It was hardly a—hardly a connected speech. In fact it seemed as if I were hearing only a part—broken and incomplete parts, as if my hearing were switched on and off at intervals."

"And the pitch, or tone," broke in Mansonby tensely, "was it high or low? Think carefully, now. It is vital!"

"Very high," the answer came quickly. "It was that, I think, which made it difficult for me to get it."

"Ah! There you are!" exclaimed Mansonby with satisfaction. "Then, after it was all over, did you sense anything departing?"

"I cannot say I did—nothing definite at all."

Mansonby arose. "Have you told your father-in-law?"

"No, I have not as yet. In fact—"

"I think you were wise. Let us not do so for the present, at least. Lawrence would be more bother than help."

"I was about to say that he is at present on the way to Mr. Mansonby."

"O, yes, I remember. Some Martian had robbed him on some small matter, and he was going to get him if it took—I remember. Now, we'll ask you to leave us for to-night, Professor, if you will." He turned to Marlin. "Marlin, show the Professor a car he can use, will you please? We'll want Miss Lawrence's car. You might call early to-morrow, Professor. And let us know meantime where you are."

Marlin asked: "Any further trouble with the car after—"

"N-no, not that I recall."

"Did you feel any jar or bump, as of another car alongside?"

"No, I did not, but it was storming hard and I may not have noticed it—in my excitement and all."

"All right, never mind, then," said Mansonby. "Now go and see if you can't get some rest. If your wife is anywhere in the Solar System we'll find her—and I have no doubt she is."

The Professor's eyes pleaded. "Could you—have you any—"

"I'll say this much, I do not believe her life is in immediate danger. That is about all I can tell you now. We shall try to circumvent these—abductors—before any harm comes to her."

Alone again, the two faced each other a moment in silence.

"Well," snapped Mansonby at length, "talk up, Marlin! Talk up! I judge your mind has something on it."

Marlin shrugged. "Nothing to say, Chief, only what you're already saying to yourself. The young woman was abducted by persons, or beings, at least, who have accomplished the feat of making themselves invisible."

"Which means?"

"Means they are probably not inhabitants of Earth."

Mansonby nodded agreement. "Yes. And—?"

"Of course, there is the obvious matter that they—whoever they may be—did not come to Earth just to carry off Miss Lawrence, as an individual. The case is larger than just that."

Mansonby nodded again, approvingly. "And their real object? That's the big question."

THERE was an interval of silence. Mansonby took up the word. "Now, Marlin, we've made some progress, I think. Let's take Sanderson's observations about the hairy arm at its face. True, he was in a state of frenzy, but he is a scientist, and a man of brains. And if a hairy arm, let's deduce a hairy body, and name these mysterious visitants—well, Beast-Men, in a sense. But is there any reason why beings who wear hair instead of clothes shouldn't have brains?"

"Quite the contrary, apparently," admitted Marlin ruefully. "Unless beasts were acting under higher orders—doing the dirty work at the direction of higher beings."

"Um-m-m, possibly, but I rather think not, Marlin. We'll consider that later. What did you get from Sanderson's report about the voices, or sounds? I thought you were looking intelligent at that point."

Marlin grinned. "Rather obvious, I think, Chief. Communication by ultra-sounds—vibrations too short and rapid to be heard by the unaided human ear. Now, we can assume either that they are some sort of super-beings naturally adapted to ultra-sound, or that they're using ultra-sound appliances. But the point is, that what he heard was the scattering lower sounds that came down into his range."

"Not half bad, Marlin," the Chief commended warmly. "I can think of objections to your first alternative. It wouldn't account for their ability to render their ships and their victims invisible also. So, without going into scientific detail, let's take the latter. That would mean that they know something we do not for though we have means of communicating by ultra-sounds, and seeing things vibrating outside the spectrum, we are unable to render ourselves invisible. It might be done by surrounding ourselves with some kind of ultra-wave protectors; but don't forget this, Marlin: that would not be true invisibility. It might prevent you seeing the person so surrounded, but it would not remove the person or thing so surrounded from between you and what lay beyond. It would still cut off your vision of what lay beyond, and hence you would be aware of something, which might appear as a shadow before you. The only true invisibility we know anything about is absolute transparency. So that is that. Now, next, where in the solar system are there any such beings as ours have got to be?"

"There aren't any," said Marlin with prompt finality.

"Careful, Marlin! You know that for practical purposes we're limited in our search to the space inside the asteroid belt that lies between Mars and Jupiter. Did you, by any chance, ever hear of an ancient race that was chased off Mars several hundred years ago?"

Marlin's eyes opened wide. "Chased off Mars! Never heard of such a thing. Where did you grab that one?"

"Well, I got it from Maltapa Tal-na some time ago in another matter, and he has specialized in Martian history. It's the only real clue I've thought of so far. That Martian isn't without brains, Marlin."

The assistant's face brightened with interest. "Uh hu-u-uh! and you think they're our meat?"

"I don't know. It is worth looking into."

"Any idea where they are?"

"Only by guesswork—elimination. But let that go for the moment. Maltapa says there was an ancient and highly developed race on Mars which had long given itself up to the refinements of abstruse science. Their numbers had greatly diminished, and when the later and more warlike races grew up, they drove them into the remote mountain regions and—well, finally they decided to exterminate them. But when they—"

"Why exterminate them?"

"Some very ugly things were said about them. Martian girls were being missed, and it was rumored they were using them in their biological research. They were said to have become inhuman monsters of incredible depravity. Well, when they found their mountain fastness, they were not there. They were gone, to the last one, and it was supposed they had just died out. Maltapa says they had advanced to where meta-

geometry and the fourth dimension were rudimentary. And that's all there is to the story—so far. That, and the fact they haven't been seen or heard of since. It's not inconceivable that they became hairy men. Our early ancestors were, and under similar conditions we would be again. You know on Venus to some extent, and Mercury entirely, being so hot, they dispense with clothes, and their bodies are lightly haired. But in the rugged climate of the Martian mountains, or some other climate since leaving Mars, they might have become regular hairy men—what you might call beast-men. Considering their scientific advancement, what is unreasonable in the theory that, forestalling the hostile intentions of the Martians, they left and made a home on some other planet?"

THE Chief Detective arose as if to end the conversation. "Just as a speculation, Marlin, going back to the question you suggested at the outset, as to the real object of these—er—beast-men: if they turn out to be this lost Martian race, they might be impoverished, and the fact that they have stolen the daughter of rich old Octavus Lawrence, of all men—"

"That's so, Chief!" Marlin broke in, slapping his knee. "That's so. There's sense to that!"

"And another thing: survival comes before riches even, and they may have set out to try to avoid extinction by importing wives from other planets."

"M-m-m! Not so good!" grunted Marlin, making a wry face.

Mansonby bestirred himself energetically. "Now, Marlin, I've got to leave you to handle the interplanetary end of this for the present. I'll take it up later. Warn all ships moving between Earth, Venus, Mercury, and Mars. Advise all our planetary offices fully and have them set their best operatives to watch all movements in their neighboring space. Have them pour out scouts in all directions. Drop everything else and use all the men you need. The bills won't be scrutinized. It's unlikely these abductors come from beyond Mars, since Jupiter is not inhabited. Now snap to it, Marlin. I must get busy. The danger may not be over for Earth yet. Come in here as soon as you're through with the preliminaries."

Mansonby turned to a maze of buttons, grouped on a score of boards. Then he changed his mind and went to his desk, where he turned a switch on a small but complicated machine, into which he spoke slowly and thoughtfully. Concluding, he slipped a piece of typed tape from the machine and handed it to a clerk who had responded to his call.

"Give this to Vitelli and have him broadcast it on the emergency wave to all Earth stations at once, Martin. Jump to it! Don't lose a second!"

The clerk whistled softly as he read. "To all Earth detective stations. Urgent emergency! Danger! Therma Lawrence, daughter of Octavus Lawrence, wife of the famous Professor Calder Sanderson was mysteriously abducted this afternoon at about two o'clock spot time, while traveling with her husband over northern central United States. Photographs will be broadcast later if it becomes necessary. Abductors unseen and entirely unidentified. Apparently have means of rendering themselves invisible. Probably powerful, hairy, unclad creatures, but of great advancement. Beware their further activities! All central stations inaugurate swift independent action, employing all reserves, despatching aloft utmost limit of armed patrols, equipped for ultra-sight and sound. All centrals report frequently to Mansonby, New York."

In a matter of minutes Vitelli had the message girdling the Earth to its remotest corners.

Mansonby pressed another button. "Emergency! Get me through to Professor Ventrosino, at the Major Observatory, in a hurry!"

He was fortunate enough to get the eminent astronomer promptly, and repeated the high points of the case.

"Ventrosino," he begged, "I wish you could lay aside everything and use the big 50-foot lens on this. It's the biggest thing Earth has ever known, and I'm afraid it isn't started yet. Hook on the super-spectrum and the special space glasses. And get old Denda of Mars to help in his section. Can you do that for me, old man?"

"Of course, of course, Mansonby. Calder Sanderson happens to be a good friend of mine, too. Any suggestions?"

"No, Ventrosino, nothing you wouldn't think of. These parties are probably on Earth yet, but I thought you might keep the big eye on the territory about Mercury, Venus, and Mars, for foreign activity of any kind. And, Ventrosino, get old Denda to take a specially good look at the larger of the minor planets, will you?"

"Minor planets! But, my dear fellow, that's ridiculous! The minor planets are not inhabited. They are not—"

"Don't you be so sure, old man."

"But man, they aren't, I tell you. They have no gravity, or almost none; no atmosphere; no—"

"Excuse me, Ventrosino, I haven't a moment just now. Do it anyway, won't you? I have an idea."

"All right, Mansonby, just to humor you, but—"

Marlin re-entered as Mansonby switched off. "All fixed up with Mercury, Venus, and Mars, Chief. Etherograph going on the way-ships and stations. Mars office wants to know—"

"Sure, sure, I know—wants to know when I'm coming over. Well, you tell Maltapa to go fall into the Sun. That Martian office needs a nursing bottle. Still"—he grinned a bit sheepishly.

"Ready to take a look at Miss Lawrence's car, Chief?"

"Just a moment, Marlin." Mansonby again turned to the sea of buttons, and in a moment Martin appeared. "Emergency, Martin. Get me Professor Ivan Zdombski, of Moscow, authority on minor planets or asteroids; also Professor Altenstein, of Berlin, authority on—if I'm not here I'll be on the landing stage just outside."

The aerocar of the unfortunate girl was gone over from tip to tip, from propellers to ailerons, without any result whatever.

"Well, anyway, that confirms my theory, in a way," said the Chief, not over-enthusiastically. *"What was that?"* Mansonby froze suddenly alert, glancing cautiously about.

"What was *what*, Chief?"

"Why, I thought I heard something. Didn't you? No? Well never mind. Guess it was my imagination.

THEY turned from the aerocar and were about to re-enter the offices. At the threshold they stopped short and stood staring down at a sheet of paper lying in front of the doorway, where they could not have entered without stepping upon it. Mansonby picked it up and they read, in the interplanetary language, understood by educated people everywhere: "You will do well to keep out of this, Mansonby. Greater powers than you know are at work. We watch as you read."

That was all. In spite of themselves, the detectives

glanced round a bit nervously on noting the last words, and they could have sworn they heard something like a chuckle. Their further examination of the message was interrupted by the appearance of Martin. "Zdombski is not available. I registered the call. Altenstein's on number 37."

Mansonby nodded dismissal and hurried to the radiophone, throwing directions over his shoulder as he went. "Martin, turn on the super-sound receivers, quick! Set one about 39,000 vibrations per second up to 41,000 and one from 41,000 to 43,000! And focus the ultra-sight on that entrance there! Hurry, Martin!"

While his assistant hastened a bit wonderingly, to set the various complicated paraphernalia in operation, Mansonby held a long and earnest conversation with Professor Altenstein, in Berlin, and seemed highly pleased.

Both Mansonby and Marlin were facing the doorway to the landing stage when the visitor appeared in the path of the ultra-discoverer. Their rigidly schooled self-control stood them in good stead. Without the flicker of an eyelash, Mansonby turned his gaze leisurely toward a spot on the wall a short distance away from the apparition, while Marlin with consummate presence of mind, held his eyes steady, but managed to give them a certain deceiving quality of blankness. They embarked on some minor discussion of the case.

The being that appeared in the doorway was of somewhat greater height than an average man of Earth. He stood quite erect and in all other respects resembled themselves, except that instead of clothing he was heavily covered with hair, which overhung his eyes and came well down upon the phalanges of hands and feet. He held a cylindrical object the size of a cigar in either hand.

The Beast-Man paused in the doorway and glanced keenly from one detective to another. Seemingly reassured, he advanced stealthily two steps inside the door and paused again, his eyes roaming cautiously about the room.

The detectives giving no sign, he became emboldened and circled silently to a point at the right of and half behind Mansonby. Marlin's hand stole unostentatiously to his hip; he arose with a prodigious yawn and moved casually to one side, out of line of his Chief.

As the visitor's hand came up and launched one of the small cylinders at Mansonby's head, Marlin crouched and his automatic spat. At the same instant, warned by Marlin's movement, Mansonby ducked swiftly, threw himself to the floor, and rolled to one side. The sound of the automatic was followed in a split second by an explosion as the cylinder struck the wall.

"All right, Chief, I got him!" cried Marlin triumphantly. But Mansonby did not move, and in a moment Marlin was swaying drunkenly. Drawn by the sound of the explosion, Martin rushed in, followed by Vitelli, and a moment later by a Japanese member of the staff. Marlin, by a great effort, forced himself up, leaning heavily against a desk, and trying dizzily to focus his eyes on Mansonby's prostrate form. He seemed momentarily bereft of the power of speech, and was obviously keeping his feet only by the exertion of his terrific will power.

The efficient Martin went straight to his knees with his ear against Mansonby's heart. His face lighted as he made the reassuring announcement, "He's all right. Shock, is all, I guess. What happened, Mr. Marlin? Hello! What the—"

He had caught sight of the body of the Beast-Man.

Martin and Vitelli quickly bore their chief to a couch in an adjoining room, whither the still dazed Marlin was also assisted by the Japanese. Under the influence of restoratives, the two steel-framed and muscled men recovered quickly, and soon neither was greatly the worse for the experience. After some explanations and further precautionary directions, the two hastened back to the private office to examine their victim.

The body of the Beast-Man was gone! There was no blood on the spot where he had fallen.

The explosion had done small damage. A minute examination failed to disclose the slightest trace of the explosive cylinder that had so narrowly missed slaying Mansonby. The square of paper upon which the warning message had been written, as all other signs of the intruder (or intruders, perhaps) had disappeared.

But their consideration was violently snatched from these things. For it was then, one after the other, in rapid succession, that the blows began to fall, as if loosed by the appearance of the malevolent visitant from the ether. Mansonby at one radiophone, Marlin at another, they took the frantic calls. From the police of London, Rome, Paris, San Francisco and other points, flashed out of the ether the same dread tidings of the sinister activities of the invisible raiders from the Great Outside. Marlin chanced to take the Paris call. His face blanched as he staggered to his feet. "Chief! Chief!" he groaned hoarsely. "My God, Chief, they've got—they've got—"

SLOWLY, very slowly, as a man going to meet Death, Mansonby's palsied fingers relaxed and the instrument fell unheeded. Slowly, very slowly, he half turned and shrank together for the blow. His face went ashen and his hand brushed his forehead dazedly. "Not—not—Signa, Marlin, old man. Not—that!"

Marlin, his own face working, placed an arm gently around his beloved Chief's shoulders. "Buck up, Chief! We'll get her back. For God's sake don't—don't break, Chief! *She* needs you now, of all times."

He had struck the one right note. With a devastating effort Mansonby conquered himself. "Yes—Marlin—I—know. It—won't do."

Gradually his iron will asserted itself, his shoulders drew back, and his eyes narrowed. "All right, Marlin," he assured quietly, his taut hard voice escaping through set jaws. "Tell it all, man!"

The assistant was too wise to try to minimize this new tragedy. "Miss Latourelle was with a party of about twenty—all women but three—when they were seen to vanish suddenly. Cries were heard by occupants of neighboring aerocars, some receding sounds of struggle, and—that is all, Chief!"

With desperation they set to work on this problem, the like of which had never before occupied human minds. They tabulated the reported disappearances, setting opposite each the location, and the precise hour, reduced to New York time. The list showed seventy-nine young women and eight men. All had been taken at night and from the air. Other disappearances which had escaped notice might be reported.

Who could say whether this invisible scourge had passed and its authors returned to their sinister dens, dragging the unfortunate victims to a fate a hundred times more frightful than any death?

It was a task to daunt the bravest hearts.

"There were three, possibly more, companies operating separately, Marlin. The hours and the distances between widely separated points indicate that. They can't annihilate time and space altogether."

They sat a while in silence. "I'm afraid for those eight men," Mansonby said at last, as if concluding a line of thought. "They probably took them only be-

cause it was safer or more convenient than leaving them. It isn't likely they wanted them."

Marlin made no reply.

Ventrosino, the Chief Astronomer at the Major Observatory, was on the radiophone. He informed Mansonby, in a voice choking with scientific resentment, that his and Denda's collaboration had disclosed signs of some sort of activity on the minor planet Ceres.

"It is inconceivable, Mansonby," he protested indignantly. "It cannot be, and yet—Mind you, Mansonby, Ceres has a diameter of only 480 miles. Its mass being only about one eight-thousandth that of Earth, its gravity is a small fraction of our own, and of course, insufficient to retain an atmosphere. It's absurd, I tell you! You hear me? Absurd! No moisture; no vegetation; entire superficial area about that of the combined states of Texas, Roosevelt, and Edison. I need hardly say no life could possibly—"

Mansonby was compelled to interrupt the flow of righteous rage. "All right, old man. How much can you get?"

"Activity—movement—that's all. Nothing specific. Something moving apparently. Of course it is impossible, even with the big eye, to determine physical characteristics. Remember, it's over 150,000,000 miles away. They may be people, may be animals, possibly only shadows. It is only the movement that shows. But, damn it, they can't be living things. Don't be deceived on that score. I'm only telling you because you wanted everything. There's no air there! There's no—"

"Artificial air, old bear—air masks. Easy enough at our stage. They could go into the atmosphere of Mars and steal enough to last them several months at a time, if they can't make their own air. They could take everything they needed with them to Ceres. I see no reason why they could not remain there—permanently, perhaps."

"Mansonby," snapped the peppery astronomer, "You talk like a—a child! Ceres isn't much more than a big rock shooting through the ether. You're an ass, Mansonby! You hear me? An ass! It's against all—"

Mansonby adjured the astronomer to continue his attention to Ceres, and cut off to receive other messages. The other calls answered, the two detectives looked at each other a moment in silence. Then Mansonby, slowly, deliberately, took up the speaking tube of a dictaphone, studied it, as if it were a curiosity he had never seen before, then with a quick movement switched on and spoke into it. Concluding, he summoned the omnipresent Martin, and handed him the record, with directions to have it hurried off to the points indicated.

MARLIN had listened aghast!

The despatch stated that Mansonby was leaving Earth within a few days for the minor planet Ceres, 100,000,000 miles beyond Mars. Conditions to be met were outlined, and suggestions for the journey. Preparations must be pressed to the very utmost. Further details would follow. The company would consist of a hundred men, eighty of whom were to be the pick of Earth's interplanetary forces—veterans of the ether, trained, seasoned men of action. The remaining twenty would be picked up from Mars in passing. All must understand fully the desperate character of the venture.

One company was to leave from Paris, one from London, another from New York, and a last one from San Francisco. They would meet at a designated point and proceed to Mars, where a Martian ship would join them and then would come some final preparations for the perilous plunge off into the planetoid belt lying between Mars and Great Jupiter. It was a *coelum incognitum* to the inhabitants of the inner ring of planets; a place infested with giant rocks hurling dizzly through space. A collision with even the smallest of these would spell stark irretrievable disaster. No human being had ever entered more than the inner edge of the 850,000,000 miles of space between Mars and the Giant, except for a few martyrs of science, whose fate could only be guessed.

Each company of twenty would travel in a separate ship, so that disaster to one ship would not mean the failure of the entire expedition.

The dictation was no sooner completed than an invisible listener, who had been lurking on the landing platform, keeping carefully out of the path of the ultraviolet discoverer, stepped into an equally invisible craft and flashed silently away. Soon the message was being repeated in a strange language to others of his kind millions of miles away in space.

The succeeding days brought a literal deluge of reports into Mansonby's offices. They came from Earth points as to preparations for the journey, the personnel of the various companies, the paraphernalia required, and a hundred details; they came from Earth police stations as to new observations, rumors, and complications, with suggestions, tips, information. There were endless conferences with Ventrosino, Altenstein, Zdombski, the Martian chief Maltapa Tal-na, the leading investigators of Venus and Mercury, and a hundred others, until it seemed incredible that the head of one man could encompass a tithe of it all.

Since Mansonby had clutched at himself desperately on hearing of his wife's abduction, he had shown no sign of emotion, but rather a calm, cool deadliness. He rarely left his desk, sleeping fitfully in his chair as he could, his mind bent savagely to the superhuman task. He selected from the ceaseless avalanche certain vital parts only, for his own attention, passing on the rest to the equally tireless Marlin and his assistants.

And meantime from the Beast-Men there was only a silence that seemed heavy with menace.

Twenty-nine days after Therma Lawrence's disappearance, four small but powerful ether ships anchored over Insa Bel-qua, the international capital of the United Quas, or peoples, of the planet Mars. But despite their scant thousand feet of length, these slim torpedoes of the ether had made fifty million miles from Earth in twenty-five days.

Their appearance gave eloquent testimony to the narrowness of their escape from the clutches of the Beast-Men, as will soon be seen.

Mansonby's object, in undertaking the hazardous journey into the uncharted realm beyond Mars, was to cut off and deal separately with the Beast-Men remaining on Ceres and entrench himself there against the return of the marauding bands with their prisoners. The latter not having quitted Earth, so far as known, comprehensive and elaborate plans had been laid to bottle them up and rescue the unhappy captives before they could be carried away. Three of the outstanding detectives of the whole solar system were rushing earthward from Venus and Mercury with numerous aides, to join the chase. Ventrosino the astronomer, Zdombski of Moscow, Altenstein of Berlin, Vitelli of New York—all were lending their best in a conspiracy that it seemed must make it difficult for the abductors to escape from Earth.

Sanderson was to remain to lend the aid of his great scientific resources.

BUT Mansonby was leaving nothing to chance. Better than any other he realized the stupendous difficulties of taking these invisible raiders. He hoped they

would be cut off before they could leave the scene of their marauding. But they might not be and unless rescue came to the prisoners soon, considering the nature of their peril, it would come too late. Hence his far-flung plans to meet them on their own ground if he must.

It was not alone Therma Lawrence now. His heart's own idol was waiting, yearning, perhaps almost despairing, yet trusting in him, somewhere out in the wide spaces. Her he would not disappoint.

The ships of the expedition traveled on the Sanderson electro-magnetic gravitational currents, already briefly alluded to, plus the powerful impulses of atomic disintegration. The ether offering no resistance, the successive impulses brought about a speed that would have been practically unlimited except for certain difficulties yet to be overcome in respect to aerolite protection. They were equipped with marvelously delicate "finders," which were sufficient to detect and turn aside the ordinary small bodies with which all extra-atmospheric space is infested; but beyond a certain speed the hazard was too great. They were not ready yet for any such dizzy speed as the predicted 500,000 miles an hour.

Before Sanderson had pointed the way to utilization of the gigantic electromotive force of the ether, the journey to Mars had taken over two months. It was now whispered vaguely that before long with the improved finders, it would be made in two weeks, ten days, even less.

Work and grief had reduced Mansonby to a shadow of his former self; but on the journey he still drove his mind mercilessly to the task of reaching out far ahead and fitting every smallest thing into its precise place for the last perilous phase of the journey, that must mean victory or dreadful defeat—the trip from Mars out into the unknown where swept Ceres, along with the thousands of its dangerous brothers and sisters.

He did not shirk the realization that failure would condemn his own beloved, as well as those other gentle women of the Earth, to the disgusting fate of mothering the future Beast-Men of Ceres. His heart fainted at the thought. But it *must not* faint!

Marlin had been thoughtful. Mansonby had seen him puzzling with paper and pencil which he would hide slyly at his approach.

"What's worrying you old man?" Mansonby asked at last, drawing up a chair significantly.

Marlin looked up anxiously. "I'm not an astronomer, but the way I figure it, we haven't a pauper's chance of landing on Ceres. We're making about two million miles a day; could do two and a half, but not too safe —yet."

Mansonby nodded shortly and waited.

"I've been figuring the speeds of the different planets. Earth does around 1,600,000 miles a day. Happen to know if that's right?"

"Yes, I think so, about," allowed the other, after a brief mental calculation. "Isn't that satisfactory?"

"Why, here's the trouble, Chief: Mars is fifty million miles farther from the Sun than Earth is, so of course it goes a great deal faster."

Mansonby's lips twitched as Marlin went on somewhat didactically.

"The farther from the Sun they are, the faster they go. Ceres is millions of miles beyond Mars, and must speed up to four or five million a day, or twice as fast as our best ether ship can travel. Now how in the world are we going to land, then? Why, Ceres would shoot by us like a—like a—"

"I'm afraid your astronomy is even worse than mine, Marlin. As a matter of fact, the farther from the Sun they are, the more *slowly* they travel. Let's have your pencil a moment."

HE figured rapidly. "Roughly Mercury, nearest the Sun, travels about 2,579,000 miles a day; Venus, next, 1,870,000; and Earth 1,600,000, as you said; and Mars 1,280,000. Of course these figures are rough. I don't remember exact distances. Mercury revolves around the Sun in 88 days; Venus 225; Earth 365; Mars 687; and if you care to go on out to old Neptune, it takes him 160 years to make the circuit of the Sun. On Neptune, if you lived to a ripe old age, you might see a whole summer, or a whole winter, but no man would ever live to be a year old. Ceres is much slower than our ships are. We'll just slide up alongside at one of the poles, cut our speed to suit, and we're landed. We'll use artificial gravity, as a matter of course—electro-magnetism. Just the same as on the ships here. At our distance from the planets there's no natural gravity, and yet we are unconscious of any change, because the ships are centrally charged to our normal, or Earth, gravity. Otherwise we would have to fasten ourselves down to keep from floating round quite irresponsibly. You couldn't pour coffee into a cup or soup into a bowl. Remember there is no up or down in free space. If this ship were suddenly to go bottom-side up—"

Marlin threw up his hands. "Great guns! Don't, Chief!"

"No, Marlin, you're all wrong. We would notice no difference."

"You mean to say if we were standing on our heads we wouldn't know it?"

"Precisely old man, as long as our feet pointed toward the gravital center of the ship."

"All right, Chief, may be so," allowed Marlin dubiously. "I hope so. You spoke of landing at the pole—why the pole?"

"To avoid the axial rotation which might be quite a problem. Ceres rotates at a speed of about seventy miles an hour and while that is slow as celestial movements go, it would complicate matters materially, as we'd have to travel at once forward to keep up with the planet and sidewise to neutralize the rotation. Where there is atmosphere, the speed of rotation is taken up gradually as we enter it; but Ceres has no atmosphere. So we just land at one of the poles, where the rotary speed is reduced to a minimum. Just like a fly on a wheel—the nearer it crawls to the hub, the slower its rotary motion. Also, the gravity is slightly greater at the poles, or at least the centrifugal force is less. On Earth you weigh 200 pounds in New York. At the poles you would weight slightly more. On Mars you'll weigh only 75, as you know, because—"

"You forget this is my first trip over, Chief. Never been off the Earth before."

"Oh! So it is. I forgot. Well, Ceres is less than 500 miles in diameter; so if you keep in good trim you may weigh as much as six or seven pounds. You can play marbles with cannon balls and throw a 300 or 400 pound rock so far it would never come back. But Sanderson has fixed all that for us, as I'll explain later."

"We'll need a lot of gravity. It's going to be a windy place on that little pill traveling a couple of million miles a day. Lord help us if we blow off!"

Mansonby smiled. "This ship encounters no wind, and it goes faster than Ceres. What *is* wind, old man? Think a moment."

Marlin studied a moment, then slapped his knee. "By goodness! That's right! No air, no wind. Right?"

"Right as a televisor."

The trip to Mars had been by no means uneventful. It was scarcely half over when the lookouts reported a strange vessel paralleling their course a bare thousand miles away. When a shot was sent toward it, it discharged a hail of projectiles and flashed out of range. These projectiles were deflected or caught in the meshes of the protective screens devised for the purpose, whence they were retrieved gingerly and held for examination.

They were small sharp-pointed metal cylinders less than six inches long and two in diameter, weighing little over a pound. But the netting had saved the fleet, for the stray one which struck the stern of the flagship exploded with a force that tore out an entire electronic engine and bearings, leaving a gaping hole. This was not serious, however, for the ships were divided into a multitude of hermetic compartments, which were closed instantly by the outrush of air if any compartment were punctured. Each ship was a reservoir of air, compressed to the density required for breathing, and ventilated by automatic renewal from pressure tanks and exhaust through vent valves.

The other ships sustained only minor damage, and repairs were quickly made without halting the fleet. Greatly to Marlin's astonishment, in doing this the mechanics, after donning the necessary apparatus, let themselves out upon the exterior decks and walked up and down the sides of the ship and around the bottom with the most perfect sangfroid, feeling no inconvenience when standing on the bottom with their heads "downward." The central gravity charge of the ships held them in place.

THE presence of the scout meant that the enemy was lying in wait. They surpassed them in speed and probably in numbers, and none was bold enough to predict the outcome of a concerted attack by these lightning raiders. It would be poor strategy to risk the entire venture in any precipitate engagement. If a vessel were shattered—well, it was not pleasant, the mad thought of being blown forth to drift eternally in the voids. A little while—a day or two at most—the marvelous ether envelope would give them breath. But after that—it was not a thing to think of. And besides, this very fleet might have their dear captives on board, and in destroying it, they might destroy the very ones they had come so far to save.

After a hasty consultation, the fleet beat about, headed back on its course for a few hours, described a wide detour of half a millian miles, and then held parallel to the original course until within two days of Mars, when the prows were put straight at the port.

This had hardly been done when scouts were seen hovering in the distance, and while still a day off Mars, a superior force was discovered less than a million miles on their flank. The speed of the fleet was increased to the limit of safety and far beyond; but the enemy was rapidly overhauling them in spite of it.

Each ship of the detective fleet carried ten duplex super-machine guns, each firing a spray of ten formidable explosive shells per second, and a number of lesser guns for use at closer quarters. The use of any form of gas attack in the ether was manifestly impracticable, and the various forms of destructive ray were useless on account of their short range.

"We have this advantage over them, anyway, Chief," suggested Marlin, "that they are coming to meet our shells, while we are traveling away from theirs."

Mansonby looked at his assistant soberly a moment, then shook his head. "No, old man, we have no such advantage. If we were traveling at the same speed as they, we'd acquire an advantage by the firing, but in speed only, not in the firing."

Marlin would have argued the matter had there been opportunity.

As the two fleets flashed onward like twin lightning bolts, Mansonby turned in the direction of Mars, shook his head gravely, then spoke to the chief radio operator, who hastened toward the despatch room to send a message on ahead to Mars.

Now they were a bare hundred thousand miles apart. Tentative showers of Cerean shells went wide or were deflected by the "finders." The range of fire was unlimited, since a shell once projected would continue indefinitely on the line of projection. It was therefore not so much a question of accurate firing as of accurate dodging.

At fifty thousand miles the Cereans began work in earnest. The shells came in floods, and while hundreds missed, many struck. The ships' staunch sides were punctured and dented and scraped in a hundred places. The protective netting was badly wrecked, leaving the ships a fair target. It was an even question whether they could weather another volley.

Something must be done, and quickly.

Reasoning that the enemy would not lightly endanger the prizes they had been at such pains to secure, Mansonby ordered a concentrated fire on the foremost enemy ship. This volley must have given the Beast-Men substantial food for thought, for when the enemy ships encountered the barrage, the foremost literally leaped into fragments, crew and fragments hurtling off into space in all directions. Speedy scouts darted to the rescue of the wrecked mariners, however, gathering them up with incredible skill and agility.

The rescue of living beings from the ether was made possible by the fact that each was protected while in action by a specially devised covering known as an ether envelop. Otherwise death would have resulted at once. These had originally been heavy, unwieldy, affairs of metal; but had later evolved into an envelope of tough elastic material fitting loosely. They were filled with air compressed to the desired density, and automatically renewed in the same manner as in the ether ships, only in a smaller way. They were heated and enabled their wearers to exist quite comfortably in the ether long enough for rescue to reach them.

The pressure being from within, the person wearing an ether envelope resembled a small partly inflated balloon, and while the entire envelope with its fittings would have been too cumbersome for the Earth's surface, the weight was not felt in the ether or where gravity was slight.

The enemy did not pause. Fire was then directed by all batteries against the next ship in their line. But at the instant of discharge the Cereans veered with lightning rapidity and flashed away. Nor did they return to the attack, which was soon explained by the appearance of a force of Martian ether police in the offing.

SEEING the Cereans in retreat, the Martians whirled, flashed a salute to the incoming fleet, and sped homeward to other duties.

The Tellurian fleet, then, had just arrived over Insa Bei-qua. Except for a slight swing with the snappy morning breeze, they hung motionless. Glasses were trained on the surface. These were of special Martian make, the light on Mars being far less than on Earth, owing to its greater distance from the Sun. The artificial gravity of the ships regulated at first to chat of Earth, had been switched off and those visiting Mars for the first time came in for strange experiences.

Marlin, from being a man of 200 good pounds, had become a child of 75, and stepped mincingly about, holding on as if fearful of flying off into space. Incautious use of the muscles caused one to rise disconcertingly from the deck, and there was much gasping in an effort to satisfy Tellurian lungs with thin Martian air.

"I'm sorry, Marlin, that we haven't time to land and show you Mars. Perhaps when we come back—if we ever come back."

Marlin's hand touched his Chief's shoulder. "Don't say—a word—Chief," he panted, gripping the railing nervously. "Plenty of—time to see—Mars when—"

"Unfortunately," went on Mansonby, changing the subject quickly, "there are nearly always some light clouds in the Martian sky, and you can't see very clearly at our height. We are near the equator—just north of it. Later in the day the temperature will be fairly comfortable. Those faint outlines off there to the south of Insa-Bel-qua are canals. That is more or less arid country. The large stretches are oases. Away to the north the large dark areas are stretches of forest—snowclad mountains beyond."

"Funny blue clouds over there, or is it my eyes?"

"No, they are blue. I believe it is caused by electrical conditions. I'm not just sure about that. Those creamy or yellow ones to the south are just plain ordinary clouds like our own, only thinner. The blackish tint of the sky is due to the light air containing fewer dust motes, which make our own skies blue. That is why it is not colder than it is. Sun's rays strike the surface with greater force. There's a sight for you, Marlin! Look through the clouds there! Both moons right close together!"

"Well, I'll be—didn't know Mars had two moons. They look as bright as if they were right close to us."

"They are. Only a few thousand miles away. That's why they're so bright, although they're only six or seven miles in diameter. Travel around Mars in the same direction, one setting in the east and one in the west."

"It wouldn't be so bad here, Chief, if a man could only get a decent breath and carry a few hundred pounds of lead in his pockets."

"No. Conditions are not really so bad. Days about the same length, only there are 687 of them to the year, making the seasons nearly twice as long. The intercourse between the peoples in the last several decades have brought them pretty close together. The Martians you see on Earth don't differ much from us."

"No. I've often wondered about that, too."

"Simple, Marlin. Come from the same stock. All the peoples of the inner circle of planets came originally from the same stock. The traditions are too similar to have arisen independently. The similarities of language are marked. Besides, there are apparently authentic accounts of an ancient Martian race which traveled among the planets as freely as we do. But the civilization was lost from some cause, and the planets became isolated again, until in recent times. Of course, Mars has only about one-fourth the superficial area of Earth, with a smaller percentage of habitable area. Its population is crowded at 600,000,000, as against a comfortable five billion on Earth. Births are restricted to the maintenance of the present population, and must be equally divided as to sex—same as on Earth in the more congested countries. Mars couldn't support any more, and the people of one planet are not fitted to live on any other, although some of them do. You remember Vemurth Quartz, the girl that won the last interplanetary beauty contest? Well, her father was born on Mercury, her mother on Venus, and she herself on Earth. Her first name is combined of the—"

Mansonby broke off to point to a small aerocar shooting toward them from below. "There he comes!"

IN an astonishingly short time the car had alighted on deck as gently as a bird. A single person leaped out and extended an enthusiastic hand to Mansonby. Rubicund of skin and hair, his massive form, muscled like a tiger, towered a generous twelve inches over the six-foot detectives. He walked with a limp and his left arm rested in a sling.

With a grimace and a sharp exclamation, Mansonby snatched his own powerful hand out of the grip of the great paw. "Damn you, Maltapa," he greeted the giant cordially, in the interplanetary tongue, "you don't have to break my bones, just because you weigh 350 and are as strong as an electronic engine!"

The great Martian beamed down apologetically. "Excuse me, Chief," he rumbled, "glad to see you, is all. I forgot you Tellurians weren't very husky."

"Why the limp and the sling?" demanded Mansonby solicitously.

"Tell you about it later," the giant said, in what passed with him for an undertone. "Had a little fun with some fellows and they played rough."

After introducing Marlin, Mansonby ignored further amenities. "Ready to go?"

At a meaning glance from the Martian, Mansonby led the way briskly into an elaborately equipped office some twenty feet square in the fore part of the ship, the Martian bending low to enter. The door closed, he shook his great head slowly. "No, Chief, I'm not ready. Had some hard luck."

Mansonby snapped his watch. "Talk fast! Time's valuable. We've got to be off."

"Chief, I had the finest ship on Mars, all equipped, crew picked, ready to start. I expected you yesterday, but you're—"

"Yes, I know we're late, but—what happened?"

"That's how I happened to be watching for you," the Martian rumbled on imperturbably, "got your message and shot our ether police out to meet you. Sorry I couldn't come, but—no time. Well, just before daylight yesterday I had a call from one of the crew on the ship, that some kind of hell was loose. Didn't seem to know just what *was* happening. Crew being slaughtered, ship wrecked. Then I heard a sound like an explosion and the poor chap broke off with a groan. I was the first one there. It was a shambles, Chief—horrible! Every man on board blown to pieces and the ship a sight. Furnishings broken up, engines ruined, instruments smashed or taken away. Should have been on board myself, but—I wasn't. No excuses, Chief."

Mansonby's face softened as he reached a hand up to the Martian's big shoulder. "You don't *need* any excuses old chap, and I'm glad you *weren't* on board. You'd only have got yourself killed, though heaven knows if any of us will be alive very long. Get any ideas?"

"O, I did—two of the prettiest ideas you ever saw." The Martian jerked an enormous thumb downward. "Dead, but —want to have a look?"

"No, thanks," replied Mansonby with a rueful grin, "Marlin and I had a look before we left home. Anything else?"

"They're the lost race of Mars, all right. Went to Ceres and been there ever since. This fellow said something big was coming off, but he wouldn't—"

"Oh! You talked with them?"

"O, yes. One of them lived a while. Spoke inter-

planetary, though a bit brokenly and mixed with ancient Martian."

"Good work! Don't suppose you ran across Lawrence."

"No, but he ran across me plenty." Maltapa grinned: "Lively chap. Blew in like a cyclone. Happily the Solar Transit was just leaving for Earth, and I managed to keep my office from murdering him till it left. I didn't tell him you were on the way or he wouldn't have gone."

"You didn't get done up just talking to that Cerean."

"Oh! That's nothing, Chief," protested the giant modestly. "Just happened to blunder into them leaving the wrecked ship, and we played around together a bit; mussed up their boat a little, and took the two prisoners, but the boat got away. Only a scout, but fast as all hell. They know something, those lads. They're going to put up a damn enjoyable fight." The giant beamed anticipatively.

"Did you get any information as to how their ships operate?"

"Not much. I saw what looked like atomic engines, but—in the wrong end. So my guess is they travel by some new principle, and the engines are only for brakes. By the way, Chief, how long are you provisioned for? Want any more?"

"No, I think not, Maltapa. We have normal provisions for eight months, besides the legal supply of concentrates."

"This trip is apt to take us about—"

"Well the orbits of Ceres and Mars are over 100,000,000 miles apart, and you can double that for the angle we have to take. We should reach Ceres in three months. I hope we're lucky enough to return in some of those fast Cerean ships."

THEIR travel on the Cerean ships was to be somewhat different from their expectations.

They were interrupted by the ship's radiophone at Mansonby's elbow. He snatched up the receiver. "Mansonby speaking." At the first word he jerked taut and listened in tense silence. "When—? Just now, eh?—Yes, yes, talk fast!—All right, is that all? All right, thanks.—Yes, in twenty minutes. Good-bye."

Mansonby snapped up the receiver and turned sharply, his eyes alight, his lean jaw thrust out. "Martian-bound Solar Transit just saw a fleet of five strange craft with women aboard. Shot by them a few thousand miles away, hell bent, headed eleven points off Mars. They're our meat. No doubt about that. Passed the Solar as if she were standing still, and you know the Solar isn't slow. We've got to jump fast! Now, Maltapa, you—"

But the intelligent Martian had already gone into action with a speed and vigor that belied his usual deliberation. With a happy bound that hurled his chair crashing into the wall, he leaped for a radiophone and called his office. "Emergency!" He boomed, continuing in a rolling thunder of rapid-fire Martian. "Notify all who were to accompany the wrecked ship to rush up to Mansonby's fleet like hell! Bring what they can but don't wait an instant. Send all the provisions you can without delaying them. *Fifteen minutes to get aboard!* You hear? Fifteen minutes! Any man that's late gets left! Jump, now, for your life!"

As he banged up one receiver with his right hand, he reached for another with his left. "Ether Police! Emergency!" he roared again. "I'm leaving with Mansonby's fleet in fifteen minutes for Ceres. Yes, I said Ceres! Dispatch the first reserve fleet after us in ten hours. Current provisions for six months. Second to stand off and keep abreast of Ceres and await instructions, but *to keep free of the asteroid belt!* Call old Denda, and tell him to follow us with the big glass and the special space-glasses and keep in touch with my main office. Don't know as he can do anything. Get in touch with incoming Solar Transit and get full details of the strange fleet of five ships that passed them, and have Denda try to pick them up and track them, and let us know. That's all."

The Martian banged up the radiophone with a force that crumpled it like tin. The two Earth detectives watched with open admiration, the man's contagious power.

"By God!" exclaimed Marlin, "You aren't as slow as you look, old Martian!"

But the great form was already ducking low for the doorway. He had hardly reached the rail when the first of the Martians began to arrive. He seemed everywhere at once, his orders crashing out in a voice that made men quail. The aerocars shot to the decks of the various vessels as assigned by him, discharged their passengers and equipment as if by magic, and flahed away, with a speed and precision that spoke volumes for Martian discipline.

His part done, the Martian Chief waved a hand to Mansonby. "All clear of Mars, Chief."

In twenty minutes from the time Maltapa Tal-na had gone into action, they were nosing up through the 120-mile Martian atmosphere gathering speed swiftly. All hands were hurried off the exterior decks and the vessels sealed against the vacuum of outer space. Soon they were shooting outward in the first leg of their fantastic journey at 80,000 miles an hour, then 85,000. The first few million miles would be comparatively free of dangerous obstacles, and time must be made to allow for reduced speed in the worst parts of the planetoid belt. The surface of little Mars curved rapidly, but still Mansonby, eyes glued to the indicators, carefully appraising the behavior of the vessels, pressed for more speed. At 100,000 he gave the order to hold steady.

UNDER the supervision of their chief, the Martians were busy sorting and storing their equipment. It was little short of a miracle how much had been brought aboard in the few minutes allowed. There were great heaps of implements and ammunitions, ether envelopes, gravity appliances, scientific apparatus, glasses, provisions, and what not.

Glasses swept the ether in wide arcs with normal and ultra-vision. All batteries were held ready for instant action, and ether envelopes placed within easy grasp, as it was not known at what moment the enemy might appear.

Preliminaries over, Mansonby called his two chief assistants together. His voice was grave. "My fear is that we shall be too late. With their speed, the Beast-Men will reach Ceres weeks ahead of us. Meantime, the women are in their clutches, and—for the present we are powerless."

With a groan of agony he thrust the topic aside.

"We are absolutely on our own now," he reminded them soberly. "We can keep in touch with Mars, but Mars can do nothing for us. If we get into trouble we must get out as best we can. The territory we are soon to enter is well known to the enemy and not at all to us. We are under that handicap and perhaps worse ones. We can't even guess what traps these Beast-Men may have set for us or may be even now setting. We know that they have our women, and they know that we know it. They know that we are coming after them, and we know they will try hard to keep what

they have been so far to get. You informed your men of the danger, Maltapa?"

"I did, Chief," promptly assured the giant, rubbing his hands happily, "and they wanted to kiss me. If I had left without them, I never would have dared go home again. They're good lads in a pinch, Chief. All they ask is not to die in bed."

Their speed was now brought up to 110,000, and then in a while worked up cautiously to 120,000 miles per hour.

"You see the way we are heading," Mansonby explained, addressing himself particularly to Marlin, and keeping his eyes on the indicators, "takes us along one side of a long triangle of which the base is an outward extension of the radius vector of Mars. Ceres is moving about 40,000 miles an hour on the other side of the triangle and is already far ahead of us, but describing a curve, whereas we go straight. If Ventrosino and Denda are right in their calculations— and of course they are—we have about twice as far to go to the apex of the triangle as Ceres has. We should reach it at about the same time, allowing for delays. My plan is to veer off as we draw alongside, take observations, and—be governed by circumstances."

"Old Denda says these pirates will land at the rearmost pole," commented the Martian Chief thoughtfully, "for the reason that they *live* there—underground. He says the rearmost pole is turned well toward the Sun, and they couldn't live on the part that's away from the Sun very well."

"That means," interrupted Mansonby, nodding, "that we land there, too, since overland travel on Ceres is not—"

"It does, indeed," chuckled the giant, striding back and forth and losing his limp in his excitement. He had withdrawn his arm from its sling, and was rubbing his hands gleefully at the prospect. "We'll pull right down on top of them, and then I will get it out of their hides for what they did to my men and my ship. It's going to be sport, gentlemen. My assistant, Orala Nam-na, is a powerful lad, and I'll have him sort of keep close to you gentlemen. He's only a boy, but he's as strong as half a dozen ordinary men."

Mansonby had listened to the Martian. "By the way, Maltapa, how old are you and Orala, anyway?"

"How old? Why, I'm twenty and Orala's thirteen. Orala's wife is eight."

"Huh? Only what?" It was Marlin.

"Martian years, old man," explained Mansonby with a malicious twinkle. Marlin uncrossed and recrossed his legs, with an ambiguous grunt. He reached nervously for a solid hold as he saw his Chief's hand move toward the gravity switch to reduce their 80 per cent gravity to 70 per cent.

"We must get used to it by degrees," Mansonby explained.

"One thing I can't understand, Chief," complained Marlin a trifle impatiently, "why do we waste time going to meet this pill at the imaginary point of an imaginary angle? Why not point our noses right at Ceres and go there?"

In his earnestness, he had arisen incautiously, but sat down quickly and seized his chair.

"Two reasons, Marlin," replied the Chief. "First, if we headed straight for where Ceres is now, it would be millions of miles away when we got there."

"Fair enough. Then why not head for where it would be when we got there?"

"Just what we're doing. It's all figured out for us. The head navigator got his course from old Denda. But there's another reason: we wouldn't *dare* head straight across the asteroid belt. There are thousands upon thousands of asteroids uncharted and unknown. In spite of our almost miraculously delicate electric finders, we might hit one or get hit by one any moment, and at our speed—well, you can imagine! But by nosing out into the belt at a long angle, at a speed somewhat greater than these bodies, and changing our course to correspond with known orbits and positions, we increase our margin of safety immeasurably. Our apparatus will locate and deflect the minor bodies encountered in all extra-atmospheric space, but they wouldn't do to depend on in the asteroid belt."

A FEW days off Mars the expert Martian pilot, whom Maltapa had brought for the purpose, was placed in charge of the flagship as head navigator. The fleet, which had flown in free formation, was now ordered ranged in an oblique tandem, with sufficient front and side clearance for safety.

The Martian pilot, then, stationed himself at the flagship's instrument board with his charts about him, and prepared for the ordeal. Into his hands were placed the lives of the company and through them the lives of the prisoners they sought to bring clear. A single error of his judgment, one slight variation of his hand or eye, might reduce the ships to tangled wreckage, thrust forth to wander forever in the measureless voids, and doom the prisoners utterly. And even his best might not save them!

As the fleet began to cut the orbits of the planetoids, ether envelopes were donned and small fast scout boats were made ready for launching to pick up the survivors of any catastrophe. The speed of the ships was greatly reduced, at times showing less than half normal speed, and one time only 28,000 miles per hour. This latter was to permit the passage of a "family," or group, of planetoids, which the finders had shown to be nearing. This group was attended on its voyage around the Sun by a great number of smaller bodies ranging down to a few feet in diameter. Altogether the group occupied thousands of miles of space, and it was necessary to give its scattering fringes a safe berth, passing behind rather than ahead of it.

Suddenly Mansonby pointed out a great rocky object, perhaps a hundred feet in mean diameter, which was moving in silent majesty alongside the flagship. It appeared a hundred yards distant, but was doubtless much farther. The half of its surface turned toward the Sun was visible; the remainder of its shapeless bulk was in pitch blackness. They watched it with a feeling of awed helplessness. Its lightest touch would tumble their frail roofs about their heads like card houses.

Marlin spoke first, his glasses trained a bit nervously on the asteroid. "Merciful heavens, what a thing to have around! It just doesn't seem reasonable that a big mass of just rock like that could go right on without anything to—"

"To hold it up?" supplemented the Martian.

Shortly the fleet drew ahead and left its dangerous neighbor to pursue its majestic way alone.

Day after day, they wove their tortuous way in and out among the huge celestial cannon balls. Occasionally they would have terrifying company for a while. The pilot's skill seemed miraculous. At times there would be a rattle of gravelly fragments against the ships, and at other times heavier thuds and bumps which made them shudder and hold their breath in sheer terror. Twice there was a grinding, scraping jar, as some leering mass lurched drunkenly past.

So near did they come to disaster.

But the fleet seemed to bear a charmed existence. It slowed or shot ahead, as occasion demanded. But

always it was much the same, until the time came when they knew that at last they had reached their crisis.

The pilot concentrated his attention on a fixed point. The speed dials slipped back to 40,000 miles an hour. Mansonby arose and paced back and forth tense but calm. He started at the sound of the ship's radiophone, but his hand was steady as he answered. It was the pilot's voice.

"Ceres ahead. We will pass her at present course about 20,000 miles away."

"Keep your course and hold your distance a while then," instructed Mansonby, replacing the receiver, but without removing his hand from it. The phone sounded again.

"A scout is lying about 5,000 miles this side of Ceres. Shall I—two of them—three! They are in line a hundred miles or so apart between us and Ceres. A fourth is coming into sight now. They seem to be traveling along with Ceres. No, I think they are maneuvering to land."

"Draw up to about 5,000 miles of them," ordered the Chief, "and then hold your distance. Signal the other ships up abreast."

Powerful field glasses began to reveal the surface of the planetoid clearly. Directly off the rearmost pole, the rotation did not disturb their view. They watched the Cerean scouts land. There were no signs of dwellings, unless the ether craft lying about were such. The surface was an unbroken stretch of cliffs and massive boulders. Black shadows moved slowly here and there, due to the slow rotation. They were at the end of their journey. Their objective was right before them. In the millions upon millions of miles of empty space, they were—alone with Ceres. What was upon it, what malicious beings lurked, what deadly traps were set—this they knew nothing of. They knew that somewhere on that malignant surface of giant rocks, their helpless people were waiting—waiting for them, and rescue. Praying, weeping, subjected, perhaps, to unspeakable outrage or suffering. Hoping—a little—but not too confidently. Seventy-odd, soft, gentle, refined women of Earth, right ahead, at the mercy of the terrible "Beast-Men."

The glasses of the Chief and his two assistants were trained silently, searchingly, on the rearmost pole, striving to catch a sign of movement, a watching Beast-Man awaiting to report their every movement, and seeking a hint of the location of some entrance that might lead downward into the bowels of Ceres, into which they might fight their way desperately, foot by foot, to find and bring away the captives.

WITHIN the ships silence reigned supreme. The terrible, soundless, heavy silence of the ether was about them. A single word came to their ears, spoken with swift, staccato intonation.

"Mansonby!"

The Chief detective lowered his glass and turned questioningly to his assistants. Each shook his head and glanced about in a puzzled way. Mansonby hesitated, looked at the radiophone, started to reach for it, withdrew his hand.

"Mansonby!" The word was repeated, seeming to come from the resonanters placed in the sides of the ship for communicating between the outer and inner decks, but no speaker could be seen. It was a situation.

"Well!" snapped Mansonby grimly, in interplanetary, sensing the mysterious, the inexplicable.

"Just outside your window," prompted the voice of the invisible in slightly accented interplanetary. "Or do you chance not to be provided with infra-red observation?" The sentence ended with a slight suggestion of a chuckle.

"We are provided with a great many things," growled Mansonby truculently.

"O, yes, I suppose," challenged the voice coolly, then in a changed tone, "You're after our new citizens, I suppose, Mansonby."

"We are, and we mean to have them," retorted the addressed.

"Yes, you mean to, but we must keep them if we can. We have no women to bear us children. We *have* no children. The youngest of us is fifteen years of age—nearly thirty of your years. Our impulse for self-preservation is as strong as yours."

Maltapa squirmed and opened his mouth angrily, but subsided at an urgent sign from his Chief.

"Enough of this," said Mansonby, "We are not interested in your family affairs. We are here to retake our own people—by force if you compel us to use force. Naturally we come prepared."

"We are familiar with your—preparations. You can never take them unless we permit." There was a slight edge in the tone of the unseen. "You might take Ceres apart down to the last fragment and be no nearer it than you are now. You have about a hundred men, crudely equipped. We have several times that number, any ten of whom could utterly destroy you."

"That remains to be seen, of course."

Maltapa could be restrained no longer. "You came to Insa Bel-qua and killed my men and wrecked my ship!" he roared. "Do you suppose Mars will submit to that? Or do you think we have become a race of weaklings?"

"The act of a few resentful and lawless spirits. I regret it. But—there is no reparation we can make you."

"There is a reparation we can *take*, and we're going to take it."

"Better let me do the talking, old fellow," Mansonby whispered aside to the Martian. "The living come first."

"That is true," replied the invisible speaker to the low whisper. "Has it occurred to you, Mansonby, that some of your women may choose not to be rescued?"

"No. It has not, and any statement they might make to that effect would be inspired by fear of you or your threats. I can not and will not permit—"

The Beast-Man interrupted him. "We have eight Tellurian men we will add to your force if you wish. They might help you in case you decide to fight. Will you take them aboard?"

"I will not! We take all or—you take the consequence."

"That is impossible," was the ambiguous reply.

Mansonby turned to Marlin. "Order all batteries to prepare for instant action." But even as his assistant hurried away to execute his order, Mansonby had a sense of futility. Other weapons than guns were going to be needed, he was already convinced.

Again came that amused chuckle, as if the chuckler hadn't a thing in th world to do but amuse himself. "Don't be unpleasant, Mansonby. However, try your guns, by all means. I meant to give you something for your pains in coming so far. I must return to the surface now, as Mars is about to come between us and the Sun, and it is not pleasant out. I will return soon. I am leaving something for you. If you will open your ether door on the other side of the ship—"

The voice drifted away into silence.

ALERT for a trick, Mansonby crossed the ship and looked out. What he saw was a company of ten, standing in their all enveloping ether coverings. They

were on the deck close to the ether doors. Marlin and Maltapa were by Mansonby's side. Maltapa was already struggling joyously into his ether envelope, and calling for Orala Nam-na.

"Easy, Chief," begged Maltapa. "Don't do anything to frighten them away. Just wait till Orala and I get ready, and then ease us into the going-out chamber and let us at them. Just let us at them. We won't need any help. The sooner we start in on them the better."

The figures on the deck were making motions with their arms. One of them had stepped up and pressed the glass face piece of the ether envelope against the heavy glass panels of the ship's windows. But the light was insufficient. It was impossible to identify the person.

Mansonby went to the nearest resonanter and beckoned the other to do the same. "You'll have to speak up and let us know what you want, before you get in here," the detective said.

What he heard in reply was a light, rippling, laugh—the laugh of a woman, clearly enough. It held a familiar quality that Mansonby could never mistake. *"A-a-ah! Mon enfant—mais, que fais-tu*—why do you not let us in, *mon cher?* Is it that—"

It was enough—more than enough. Mansonby leaped for the ether door controls with shaking hands.

Signa Latourelle's female companion turned out to be none other than Therma Lawrence, and the others the eight male prisoners.

Great joy reigned at the ease of this initial victory, and no one begrudged the Beast-Men their easy triumph in disencumbering themselves of the men they did not want.

Majority opinion inclined to regard the Cereans as more sheep than wolves. Doubtless the return of the ten prisoners was a propitiatory offering, meant to abate the anger of the Tellurians and Martians. It was good. It remained only to retake the remaining captives and go home. Who cared about punishing these beast folk so long as they had their own back. They would take the others and go home without delay.

Optimistic messages were dispatched to Earth and Mars.

But in spite of his personal joy, Mansonby, almost alone, doubted the general conclusion. He pointed out the clear superiority of the Cerean navigation; their greater numbers, entrenched in their, perhaps, inaccessible underground quarters; their mysterious ability to render themselves utterly invisible at will, the difficulties attending which feat he hinted at briefly. He argued that the Beast-Men were almost certain to have some reason of their own for what they had done, and he did not believe it was connected with fear of the rescuers. More than likely it was some kind of a trick, although he admitted he did not understand it.

To add to his conclusion, it had been found that their machine guns were disabled. They bore no evidence of tampering. The gunners could not say what was wrong with them—nothing, apparently. They simply refused to act as machine guns should act.

The further disturbing fact had come to light that while upon their arrival, the male prisoners had been kept together in one chamber, the women had been separated, so that the two knew nothing at all of the whereabouts or fate of their companions. From the moment of their capture, the Beast-Men had made no secret of their destiny. Whether that destiny had overtaken the others, they could not say. They had been three weeks upon Ceres.

The returned Cerean Beast-Men had been received with great rejoicing, had exhibited their prizes freely to the people, and a great feast had been made. The prisoners had been interrogated, their answers recorded in some way, and then they had been led away separately. Their rock-hewn quarters had been comfortable, and they had been fed well, though the food was entirely strange to them.

DURING the natural greetings and general preoccupation in hearing the tales of the returned captives, the brief eclipse of Ceres by Mars had been almost unnoticed. The little planet was plunged into utter blackness, and it was only with the return of the light that they became aware that in some unknown way their ships had been landed on Ceres, whence all efforts failed to budge them. They were as solidly fixed as if they had grown there, but without anything appearing to hold them. Too, all signs of life on the planet, including the Cerean vessels, had vanished. Had they flown away to make a home elsewhere—with the Earth women for mates? It seemed not unlikely. Conceivably these clever Beast-Men might also inhabit other neighboring minor planets, as well as this Ceres.

"Well," concluded Mansonby, "we've got to beware of tricks and traps, but—we must *do something*, and at once."

"Yes, Chief," enthused Maltapa Tal-na thunderously, "let's get some action. Let Orala and me and a few of my men out and we'll see what can be found. If we can get hold of a few of these animals, we'll make them think they're—"

"I was about to suggest something of the sort, Maltapa," the Chief replied.

After careful scrutiny of the neighborhood through their glasses, it was determined to send out a small company to reconnoiter. Martians were chosen for this task, as being better fitted to conditions. Maltapa and Orala, with three others of Maltapa's picked men, donned their ether envelopes and let themselves out of the ship. Maltapa marched happily at their head, and Orala by his side.

The ships' machine guns could not be used to cover their route. This Mansonby regretted, but the Martians were equipped with formidable individual weapons, and he felt that these powerful warriors would render a good account of themselves, in any emergency that might arise.

The entire fleet's company watched them drop to the ground and start out. The rocky surface made hard going. There was practically no soil; there was no vegetation, no living thing. The ships being now on the surface, the view of the watchers was restricted. In a short distance the Martians passed out of sight over a spur of rocks—and were gone.

Owing to the slightness of the gravity given the Martians by their apparatus, progress was slow. Extreme care had to be taken to avoid dangerous falls among the giant bowlders and cliffs. Crevices, wide and apparently bottomless, were everywhere. It was necessary to keep out of the shadows, for everything in them was as black as Erebus. They spread out and made a wide circle, keeping in touch with each other constantly. But to all appearances the planet was as virgin as at it birth. It was hard to believe it to be inhabited, and they began to wonder if they had not been the dupes of a cleverly arranged optical illusion.

They moved with extreme caution, and rather slowly and awkwardly, owing to the impeding cumbersomeness of the envelopes. The slightness of the gravity of Ceres, combined with that added by their apparatus, did not trouble the Martians, for it was about normal to them. They held themselves constantly alert for signs of the enemy, picking their way around the pits and

holes made by falling aerolites. At times they had to leap across great bottomless fissures. At last they found their progress barred by a precipitous gorge, several hundred feet in depth, and apparently miles in length. Its depths lay in profound blackness. They halted on an overhanging ledge and spent some time examining this magnified crack in Ceres, for it was little more than a wide cleft between rock walls, with nearly perpendicular sides. At length Maltapa signed to Orala that he wished to talk.

He came close to his assistant, took up a small tube-like appendage hanging from the headpiece of his ether envelope, and clamped it with great care to a similar one in Orala's envelope, forming a hermetically sealed passage between the two headpieces.

"Don't appear to notice, Orala," he cautioned, "as we are probably watched, but take a good look well down the opposite side there on the left just in the edge of the shadow. I thought I saw some sort of movement."

Orala could not make out anything, and they were just about concluding that Maltapa had been mistaken, when, without warning flash or sound there was a terrific jar like a small earthquake, and a cloud of dust and pulverized rock enveloped them. The Martian Chief and his assistant leaped back instinctively from the edge, almost tearing asunder their speakers.

When they had recovered themselves and the dust cloud had cleared, they saw that a part of the ledge on which they had been standing had been clipped off sharply and precipitated down the wall of the gorge. Where there had been five Martians on the lip of the declivity, there were now but four.

"Damn that cursed aerolite!" exploded Maltapa. "It's lost us a good man!"

DETACHING the speaking tubes, Maltapa waved the others farther back. He examined the ledge with care, selected a solid portion, and crawled forward on all fours to the very edge. Long and earnestly he swept the declivity below with his glass, until it came to rest on a particular spot. He signed Orala to him and attached the speakers.

"He's lying about half way down there, poor devil! See him? He's lying sprawled out in a sort of hollow just above that great pile of bowlders. See him? Evidently the aerolite did not hit him. If it had, there wouldn't be anything left to see."

Orala nodded. "Too far down to reach him with our ropes I'm afraid, Chief. I suppose there's hardly any doubt that he's dead. Poor old Segala! Tough on his wife and children! It's hard to tell, in his envelope, how he is."

"Yes, it is. It would be a miracle if his envelope weren't broken through. Still, the fall isn't what it would be on Mars, you know, even counting his artificial gravity. He may possibly be alive."

"Yes, it's barely possible," agreed Orala, "but we could never scale that cliff side."

"No, I suppose not, and even if we could, it would take hours to do it. Best way is to signal for a scout boat. Maybe they can drop down and pick him off. Then we'll finish up this job and get back ourselves. I'd like to get some action, and I don't see the chance of any out here."

As he spoke, he fumbled awkwardly with his apparatus. At length he managed to connect his speaking tube with a small portable radio, and was soon informing Mansonby of their loss. He was told a scout would leave at once.

"I don't think it's wise to go any farther away from the ships, Orala, even if we could get across this gorge. I'd give a whole bunch of scudentas to know whether that was really a movement I saw down there. It bothers me. I'd take that scout boat away from this fellow and go down there myself if I thought it was."

They had sat down to await the coming of the scout. In a few moments they saw the boat arise into the ether and begin circling. The pilot picked up their signal and soon landed near them. Maltapa explained the situation and took the pilot to the edge of the cliff to show him where the body lay.

The body was gone!

"It's probably rolled on down to the bottom," suggested the pilot, when he had connected his speaker with Maltapa's.

"No! Not a chance. The way it was lying, it couldn't get away. Not a chance of it rolling down. Something funny about this, pilot! Do you suppose those cursed—"

"Well, anyway," interjected the pilot, "I'll go down and see what I can make out."

He got into his small craft, lifted it from the surface, and dropped gently down the face of the cliff. Arrived at the place where the body had lain, he brought his craft to a standstill and scrutinized the spot with his glass. At once he put up his glass and rose to the ledge above, where he landed by the Martians.

"You're right, Maltapa Tal-na. That body never left of its own accord if it was lying where you say it was, and I can see that it was. No parts of his envelope lying around. However, if you wish, I'll go on down to the bottom of the gorge and have a little look round. Do you suppose—"

Maltapa considered it useless and unwise to risk the scout in a descent into the blackness of the bottom of the gorge, under the circumstances, and asked him to return to the fleet and report the facts, and also report that they were proceeding with their exploration.

After some further hours of fruitless and very inconvenient search they arrived back at the fleet, without having seen a living thing (if Maltapa had been mistaken about the movement at the gorge side), and without a single thing of value to report.

And yet, no sooner had they concluded their report to Mansonby, who was proceeding to call a conference, than the invisible visitant was heard calling for a resumption of the interrupted parley.

"Have no fear for your ships, Mansonby," the voice began, with a certain quality of ominous quietness. "They are safe—so long as you do nothing to disturb the mechanism which holds them. Your fending batteries being—er—somewhat out of order, you might have been destroyed by the aerolites which fall frequently on the surface. So we brought you under our own protectors, for—mutual advantage. But make no mistake, Mansonby! You are resting over a powerful repulsion battery. The mere pressure of a finger by me would catapult you into space, and being unable to operate your engines, the result would be—unfortunate."

"Don't trouble yourself," snorted Mansonby, whose nerves had been getting on edge. "We have no intention of leaving—just yet."

THERE was an interval of silence.

"I propose that we try negotiation. If it gains us nothing, at least it can do no harm. What do you say?"

"Very well, I'll hear you," temporized the detective at length.

"That's better. Then accept our hospitality. I will conduct you to our council, where we can sit down comfortably. Who can tell but you will learn things to your advantage? It may well be that we can come to

agreement when you know more about us and—our resources. You will be quite safe. We Beast-Men understand the significance of truce, and you will be accorded all the privileges of an ambassador in the enemy's camp. You may come alone, or you may bring your whole force with you if you wish."

Mansonby decided at once to accept the invitation. The truth was, he felt the need of learning much, and believed the Beast-Men would respect the truce. He had been favorably impressed by the fact that he had not been treated as a superior. The mysterious negotiator had rather pointedly omitted titles in addressing him.

At first he refused to consider anyone accompanying him; but no argument could move his wife, who pointed out that she had been in their power and been freed voluntarily. On consideration, Maltapa Tal-na was included, on his solemn, if grudging, undertaking to keep the peace.

"It's a trick, Chief. Mind what I say. Excuse me, but I know more about these brutes out here than you do. It's a trick, I say, and it would be sheer insanity for you to go alone. Once they got you in their power, they'd keep you. They know the whole expedition depends on your head alone. They'd keep you. Don't you doubt that. If you must go—and I think you're wise, for that matter—you've got to take me with you, and my advice would be to accept his invitation to take the whole force. Tell you what, Chief, you let me take about ten of my boys and go, and you stay here to look out for this end of it. Give me Orala and a few others and we'll clean up the whole bunch."

Mansonby declined Maltapa's plan and decided to take only Signa Latourelle and Maltapa. After taking Marlin aside to give him some whispered instructions the three donned the necessary equipment and let themselves into a small chamber in the exterior wall of the ship, closing the airtight door behind them. They then opened the exterior door and passed out and closed the exterior door, after which the inner one was reopened and the chamber refilled with air from the ship.

"This way, please," the voice guided them along the outer deck. "Straight ahead—slowly! Put out your hand, Mansonby—now! Right in front of you is the door of the car. That's it. Keep on your ether protection. The car is not air charged."

The three took places in the waiting vehicle, which was substantial enough despite its invisibility. On entering, the interior became fully visible. The car was a scant twenty feet long, less than half as wide, with seats for several, and in appearance not essentially unlike those to which they were accustomed. There was no way of learning how the vehicle was moved. They felt a slight lessening of gravity, but as they had become accustomed to 50 per cent of normal, it was not inconvenient for the Terrstrials, and Maltapa seemed to find it more to his liking than even the gravity of the ship.

No other was visible in the car. Through the vizors of their ether envelopes they could see the faces of their friends at the ship windows. Signa Latourelle waved a sprightly hand.

"They cannot see you, Miss Latourelle," explained the guide courteously. "When you stepped inside the car, you simply evaporated. They see nothing at all. The ultra and infra barriers prevent that, but they place no limitation on your view from within. There is, however, a secondary current—if you will pardon me. Do not be alarmed."

The snap of a switch blotted their friends instantly from sight. The Cerean car floated in an empty Universe.

There was a sort of chuckle. "You are right, of course, Mansonby. The infra-red and ultra-violet are not means of true invisibility. They have their values, but our true invisibility is due to a trick of bending the light rays around the object to be hidden, so that unconsciously you are in fact seeing in a circle and looking at objects behind it. The old nursery theory that a solid body obstructs the sight, is hardly tenable these days. You see your sun, for a time after it has actually passed below the horizon, due, as you, of course know, to the refraction, or bending of the light rays into a curve by the atmosphere. We bend them by other means. That is all. Simple isn't it? And as to your other puzzle—how I can converse with you in the ether, when you had supposed sound did not travel in the ether, and that it was necessary to resort to your speakers? Well, Mansonby, the ether is surprising stuff, and it can be made to do almost anything if it is treated right. Your very capable scientist, Sanderson, whose wife was unfortunately taken by mistake, knows that the electric current can go anywhere, and can be converted into either light or sound at pleasure. But pardon me, here we are."

DURING the conversation they had arisen as softly as a dove from the ship, and in a few moments an almost imperceptible jar told them they had landed. After some slight delay, due, they surmised, to the passing of ether doors, the vehicle tilted forward, slid downward some distance and came to a gentle stop. The snap of two switches brought complete visibility as to everything save their guide, and they were invited to step out and discard their protectors.

They found themselves in a well-lighted underground passage, a matter of fifteen feet wide and nearly as high, hewn square and clean out of the native rock. No source of light was apparent. It seemed to come from the rock itself. The air, while rarer than their ship air, was fresh, and the Martian, in particular, seemed to find it normal.

At the bidding of their guide they went forward to the wall which terminated the passage. Their eyes saw only the virgin granite of which the goods, with infinite patience, had fashioned the little planet. Yet immediately a section of wall slid silently upward, as if of its own will, and they were abruptly ushered into a vast chamber. It was brightly lighted, presumably by the same means as the corridor. The walls were hung with vari-colored carvings and tapestries of unusual workmanship. Across and a little beyond the middle of the place, was a long, exquisitely carved table of stone, holding various unfamiliar, and some familiar, objects. On the farther side were cushioned stone benches, apparently empty, but which they assumed were occupied by invisible Cereans. Other seats were near them.

The now familiar voice of their guide bade them be seated, and plunged without prelude into the matter in hand. "I take it, Mansonby, that you have but one motive for coming to Ceres?"

Mansonby nodded slowly. "If you mean that we will be content to take our people and go, without thought of revenge on their abductors—yes. I will take the responsibility of overlooking your crime against interplanetary law."

Maltapa started forward as if in protest against the threatened peaceable, and therefore disappointing, ending, but subsided disconsolately at a gesture from his Chief.

"It is impossible to grant your wish, Mansonby. In the first place, or, rather in the second place, our very existence as a people is threatened. We have shown our good will and given you a substantial victory, by sur-

rendering the wives of yourself and your friend. We did this without fear or compulsion. But the others—that is another matter, although if there is some particular one you want, we might consider letting her go, if it can still be done. You have accomplished your major objective. Be content now, and go in peace."

"And if I refuse," temporized the detective.

"If you refuse! How *can* you refuse?" There was a trace of rising impatience, the first that had been shown by the invisible. "Your fleet is helplessly bound to Ceres while we wish. Yet we could in an instant cast it adrift, with you and all your company, or, we could blow it into atoms. Your weapons are disabled, and in any case would serve no purpose. You must know that. Can you imagine yourself bombarding the surface of a planet that is composed of rock? You would gain nothing for yourself, and lose nothing for us. You have had a fair chance at hunting us out. We watched your Martians; made no objection; offered no violence. But they failed, as you would fail again. How can you hope, then, to enforce your will? Had your whole company come, instead of the few Martians, of what use would your guns have been? Come now, what do you say?"

"I say, in the first place, that I do not like talking with one I cannot see. I have never shunned looking a man in the eye. If, as you say, you have nothing to fear, why not—"

There was a silence, broken by the Beast-Man. "I think, Mansonby, that it is far better for all concerned that the Beast-Men be not seen by you. I have no wish to distress—but you were saying?"

Mansonby shrugged. "That if you care to look, you will see that we are not so helpless as you thought."

"Yes, I have been watching. I see your ships are afloat. I gave orders to restore your batteries and release them. We have no objection to their escaping."

"Perhaps," said the detective grimly, "you are also aware that our first reserve fleet has come up."

"O, yes, I see that, too. By the way: Pardon my thoughtlessness, Mansonby. Come and have a look."

THE televisual contrivance slid itself across the table toward the detective, who put his eyes briefly to it and returned to his seat with a complacent look on his face.

"Well, Mansonby," the voice broke the stillness, "What will you *do* with your reserve fleet?"

"That is as may be. Once more, will you, or will you not, release our friends?"

"I *can* not." The words were soft, but the purpose was obviously granite. The following ones were in a harder tone. "I've had your guns—er—repaired, Mansonby. You'll find them working now."

"Then I suggest you reconduct us to our ships."

"Very well, Mansonby. Thanks for coming. I was about to offer you refreshments. Won't you wait?"

Mansonby shook his head. "Thank you, no. Your refusal means we have immediate business to do. Understand, when you return us to our ships, all truce ends at once."

"Yes, that is fair, Mansonby. But before you really go, there is a little matter I might—there was the matter of your Martian who had the misfortune to lose his life in the gorge—I was going to—"

Maltapa sprang forward truculently. "You mean to say you were responsible for Segala's death? If you were—"

"No, warrior, I was not responsible, nor was any one of my people. But I thought you might like to have him back before you leave."

Mansonby silenced Maltapa by a gesture.

"Yes. We'll take the body, if you have it."

"It wasn't just that, Mansonby—and Maltapa Tal-na. If you will be good enough to seat yourselves again and promise to keep that big Martian quiet, I'll show you something you might like to see."

They seated themselves, and taking their assent for granted, the invisible proceeded. "Please keep perfectly quiet, if you will. It's rather a delicate matter, and interruption might cost a life—*somebody's* life."

At one side of the room suddenly leaped into visibility, as if imported by magic, a large tank of glass or other transparent material. It was filled with light colored fluid, completely immersed in which was the nude body of a man.

"Segala!" exclaimed the giant Maltapa, starting up belligerently.

Mansonby gave him a warning glance.

As they watched, the liquid began to lower and continued until the body was merely floating in about a foot of it. The invisible operator elevated the head and slipped a peculiar contrivance over it, which he secured about the neck; another appliance was fitted about the chest. Presently both of these began to work with a pulsing movement, and in a short time the body was responding in unison. After an interval of this, the eyelids twitched uneasily, and there was spasmodic movements of the limbs. Color began to appear slowly, and the chest to move rythmically. A hammock-like sling was then passed underneath the body, which was lifted clear of the fluid. The appliances were taken away and the body wrapped in a robe of soft material.

Apparently of its own volition, a panel in the tank opened and the body slid out, moved in a horizontal position through the air, and placed itself upon a cushioned stone couch near by. There were further ministrations by unseen hands.

Before long the eyes flickered open and Segala turned his head inquiringly. It chanced that his eyes fell first on the Martian Chief, and he smiled a wan smile of recognition. He moved his lips as if to speak, but no sound came. A look of bewilderment overspread his face as he became aware of his strange surroundings.

"Do not try to speak or move for a while," warned the invisible. "In a couple of hours you will feel better and soon you will be able to do as you please." To the others: "All right, now, gentlemen, you may carry him out, but—carefully, please. Not the slightest jar or strain."

The man who had so miraculously been brought back from absolute death to life, was placed in the ether car and with the three others soon landed on the deck of the Tellurian flagship, which had retired precautiously with its fellows a thousand miles away, to join the Martian reserve fleet of two vessels and fifty men.

WHEN they had left the Cerean vehicle, Mansonby turned to say a word of thanks to their generous enemy for the saving of the life of the Martian, but there was no reply. He had already gone.

Signa Latourelle, who had not once spoken during their excursion, whispered to Mansonby's ear. "Did you hear, *mon ami*, the invisible one has said 'Our existence *was* threatened'?"

Mansonby started, considered, and nodded shortly.

Marlin was awaiting his Chief with an expression curiously blended of anxiety and triumph. "The guns are in action again, Chief. Couldn't make out what was wrong—nothing much, I guess."

"Yes, I know, Marlin," acknowledged Mansonby a bit wearily.

Marlin eyed him queerly. "Anything wrong, Chief?"

Mansonby ignored the question.

"Marlin, I want you to call a conference in half an hour—here. I'll give you the names of those I want from the various ships." He sat down and wrote a dozen names and handed the slip to Marlin, who departed.

Mansonby turned to Maltapa: "Bring Orala Nam-na and five of your very best men. You might tell them it's extremely unlikely they'll die in bed. Talk with your reserve fleet and see if there is anything of significance."

It would have been difficult to pick twenty fitter men from the entire Solar System than the veterans who foregathered at Mansonby's bidding. They were men, one would choose to have at hand in an adventure, where life itself depended on every one of them rising to superhuman heights in the face of desperate odds.

To them Mansonby explained his decision to move at once against the Cereans with a picked company. They were to be volunteers. No man need go unless he was willing to go. He invited suggestions. They were few and well considered.

As the conference was about to break up, a man spoke who had until then sat well back and kept silence. Mansonby did not know him, which was not surprising, as he did not personally know the half of his mixed force, foregathered from all parts of Earth and Mars. His voice seemed familiar, however.

"I believe," he said quietly, "that I can lead you to the underground entrance, and if it is not closed, then I can get you through."

No one having a better suggestion, his guidance was accepted without misgiving, and final preparations made. When they had donned their ether envelopes and adjusted the necessary gravity apparatus, they were armed with the latest weapons. Each of these, secured by belts about the shoulders and waist, and weighing less than ten pounds complete, was yet capable of firing a formidable spray of 150 bullets a minute, with a force so terrific as to penetrate an inch of steel. They were the latest triumph of the Martian Ordnance Works.

The landing party embarked in two tenders.

There was dead silence on the planet, of course; nothing barred their way; nobody appeared to oppose or molest them, although it seemed certain the eyes of the Beast-Men were upon them, awaiting the strategic moment for their undoing.

True to his prophecy, the volunteer led them to the entrance—somewhat too readily, they might have thought, had they been less intent on other things. There was no difficulty in getting through the ether doors into the subterranean passage. Here they removed their impeding ether envelopes, readjusted their weapons, and stole softly to the doorway of the council room, where Maltapa and Mansonby had been before. Rather surprisingly, the great slab was raised. The way was open. But they were becoming wary of these easy favors of the Cereans, and entered cautiously, their weapons at ready. No one noticed that their guide was no longer among them, so intent were they upon what was immediately before them. The great chamber seemed empty of living beings, though this meant nothing where visibility and invisibility were but garments to be changed at pleasure.

THEY had hardly stepped through the doorway when the voice greeted them with a cordiality touched with raillery.

"Why, hello, Mansonby. Didn't expect you so soon again, but—you are welcome. Glad to have you bring along a few of your—warriors. Make yourselves comfortable, gentlemen. You are welcome. Have you reconsidered the matter of refreshments, Mansonby?"

Mansonby ignored both the invitation and the thrust. "I am here, Mr.—"

"Call me Ello-ta, if you wish, Mansonby, for convenience. I suppose names can't hurt, since I see you've decided to fight us."

"Hah?" There was a grunt and a start from Maltapa Tal-na. Mansonby did not notice it; nor did he or anyone note the fact, so silently did it move, that the great stone door, invitingly raised for their entrance, had slid downward and cut off their retreat.

Mansonby advanced and held up a hand. "As an interplanetary law-enforcement officer, I am here to demand the prisoners you have taken in the face of that law, and to arrest you for trial in the interplanetary courts. I give you final warning that our weapons will shatter everything that gets in front of them. Ready, men!"

Twenty formidable weapons prepared to spew their destruction at a word. "You have ten seconds to answer," warned the Chief.

"Just a moment, now, Mansonby!" It was the invisible one, and his tone was unmistakably sharp. "You've done some warning; now let me do a little. In the first place, I am the only person present besides yourselves. In the next, these tapestries and carving are the last priceless relics of the extinct race from which all the planets of the Solar System—your own as well as others—were peopled. You would gain nothing by their destruction, and I think you should have a common interest in preventing it. You would kill no one but me; and if you killed me you would all be dead men inside of five minutes. I remind you that you are no longer under the protection of a truce. The exit is closed, as you can see. You couldn't open it—ever. I have my finger on a button, the pressure of which would make this chamber a fairly complete vacuum in just a little more than five minutes. I see you gentlemen have left your envelopes in the corridor. Had you worn them in, the room could have been almost instantly flooded with an insidious gas which would have destroyed them, and your first shot would have blown you and your men to atoms without injuring anything else in the place."

Mansonby decided that all the Cerean had said might be true. He was too good a general to endanger the lives of his men unnecessarily. Other ways might appear. If not—then, perhaps, as a last resort—Meantime indications favored a strategic retreat. At a gesture from him the weapons were lowered.

Maltapa's great voice rumbled a sub-base as he stepped nearer his Chief. "Wait a minute, Chief Let me talk to this man. I—"

But again Mansonby was not listening. He was staring fixedly at an object on the floor near his feet. It was small and certainly seemed harmless; but it caused him to do more fast and pertinent deducing than at any time since the abduction of Therma Lawrence had plunged him into his far-flung adventure. He stooped slowly and picked it up; turned it over and over in his hand as if it had him hypnotized. But pressing events forced his attention from it.

Suddenly, as if materialized out of nothing, he saw standing in the place from which the voice had come, a Beast-Man, in general habiliments and appearance like the one who had appeared in his far away New York office. His features seemed like those of their late guide. Mansonby started, but there was no time for speculation on facial resemblances, for the Beast-Man was speaking.

"You wish to arrest me? Very well, I will permit you. I surrender myself at your discretion." The Beast-Man approached.

Mansonby raised a hand. "Stand back! Don't come a foot nearer!" The Beast-Man stopped obediently, with an ironic smile, and Mansonby continued. "Now be good enough to have these others—" he gestured toward the council table—"remove their protections and come forward and stand with you. Then we'll—"

"I have told you there are no others present, Mansonby. If you still doubt, use the discoverer on the table there near you."

Mansonby seemed to take the Beast-Man's word. "All right, we don't want them particularly. Produce your prisoners."

"I'm afraid you misunderstood me, Mansonby. I surrender neither my people nor my prisoners. I surrender myself only. If I may suggest, Maltapa Tal-na looks able to restrain me. You might place me in his charge while you yourself attend to the other matters."

The suggestion appealed to Mansonby. The Cerean was put in the custody of the gigantic Orala and the company proceeded to investigate the place.

THE result of more than an hour's minute scrutiny of every nook and corner was precisely—nothing! The use of the discoverer, to which the prisoner had called attention, seemed to verify his word that no one else was present. The walls were, to all appearances, as unbroken as if cast into a mold. There was not so much as a chink or a crack where a mouse could creep through.

The game stood at stalemate. They had their prisoner but could do nothing with him. They had possession of the citadel of the enemy but could not leave it.

"Well, Mansonby," challenged Ello-ta, when the company had reassembled, "are you satisfied?"

Mansonby considered a moment, then turned to Marlin. "Marlin, you and Orala take charge of this man, and if he tries any tricks, shoot him at once."

"Perhaps I should have said, Mansonby," remarked the prisoner, as if it were an afterthought, "that if I am not at liberty to turn a certain contact within an hour, a gas will be automatically turned into the prisoners' quarters, which will—"

Mansonby gave the man no other reply than a quiet smile. Maltapa spoke again. "Chief, I'd like to say something. I want to talk with this man. He's—"

The prisoner gave the Martian a quizzical look that would have been hard to interpret. It had something of admiration, something of amusement, one would say, and possibly a trace of enjoyment—but no element of fear.

Mansonby thought he already knew what Maltapa wanted to say. There was the matter of the destruction of his ships and his men at Insa Bel-qua. Well, it was no time just then for abuse or recriminations. "I've no time now, Maltapa," he said shortly. "I'll hear you later." He turned back to Marlin. "Marlin, signal for a car to take you out to the fleet. Come back when you have placed your prisoner in a safe place, and we'll wind this matter up."

Ello-ta took the word. "Of course, there's the matter of getting out; but if you wish I'll take one of my own cars and deliver myself, with directions that I be properly secured."

Mansonby looked narrowly at his strange prisoner.

"O, yes, I'd keep my word; but I was going to suggest, before I take myself to prison, that you might—er—need me here. Just a minute, please."

The Cerean went to the table and did something to one of the unfamiliar objects upon it. Instantly two blinding flames leaped out and focussed themselves upon two spots on the solid rock wall of the chamber. Obediently a section of the rock that had been scrutinized so minutely just before, moved upward, and a doorway appeared at the right. "There you are, Mansonby, help yourself. Don't be afraid of it. It won't close on you. You won't need ether protection. The whole place is air-charged."

Mansonby pioneered the open doorway. Perversely he halted directly under the great stone slab. Beyond was a spacious lighted corridor. He could form no estimate of its length or destination, as it curved a short distance away. At the right of the doorway was a small chamber, entered by an open archway. He glanced in briefly. It appeared to have but the one exit. Various paraphernalia hung about the walls. He re-entered the big chamber, glancing speculatively up at the stone slab that formed the door.

After a brief consideration he directed Norala and two Martians to bring the prisoner into the small chamber and guard him there. Marlin and two of his men were to remain in the large chamber near the open doorway to the corridor. The rest were to accompany him.

"Now, Marlin and Norala, watch this man carefully. He's tricky. I'm going to have a look about. I'll keep in touch with you every few minutes by pocket radio."

They set off down the sloping rock corridor, Maltapa lingering only to whisper an earnest word in Martian into the ear of his assistant. After fifty feet or so there was a left turn and a flight of steps leading downward; then another fifty feet and another flight. This was repeated several times, until they came out into a vast chamber, circular in form, whose vaulted ceiling stretched far above. Everywhere there had been sufficient lighting, but this great amphitheater was brightly lighted, as if specially for their coming. Mansonby estimated that it was not less than 300 feet in diameter. Marvel of marvels, in the center there was a large swimming pool! There were fountains playing! There was a rim of soil about the pool, with ornamental plants! There were birds flitting and chittering about!

THEY gazed in amazement.

Mansonby shook his head in bewilderment. "A swimming pool! And plants! And on a big barren rock out in the middle of empty space!"

"Where did they get the water?" Maltapa wanted to know of almost anybody. "And how can the plants grow without sunlight?"

Their eyes wandered from the vaulted ceiling back to the center, and around at the open archways on both sides of the circular wall.

Mansonby shook his head thoughtfully and answered Maltapa's question. "O, I don't know, Maltapa," he reasoned, "It wouldn't be so hard to bring the water. They have plenty of ships and know how to use them. They've been hundreds of years fixing up this place. No doubt the bottom of the pool is water-tight. So there's no waste; the water, like the air, is purified and re-purified by artificial means, and wouldn't require renewing often, if at all; and the plants can grow just as well under artificial sunlight as natural. Perhaps they manufacture the water—chemically."

Opposite their entrance was a large platform or stage, with many stone benches in front of it. On each side the open archways led to other chambers.

Mansonby took up his pocket radio and talked with Marlin and Orala. All was well, apparently, with them. Their cool prisoner was conversing genially on indifferent topics, apparently with neither scheme nor resent-

ment. He determined to explore the place in some detail at once. Even if the prisoners were not turned up, it was still a precaution not to be omitted, and there was no telling when another opportunity would present itself.

Always alert for a trap, he posted guards at the end of the tunnel.

The archways to the right led into community dormitories containing from ten to fifty cot-like beds. There were also a number of single cubicles. These contained little of interest. Evidently they were what they appeared, purely and simply sleeping quarters.

Beneath the stage was a variety of musical instruments and "properties"—much as might be found on any stage on Earth.

Passing to the other side of the stage, they came upon immense galleries containing books, paintings, and statuary. Such of the volumes as they examined were printed in ancient Martian, and the paintings were largely of Martian scenes and incidents. Next came the chemical laboratories. The major part of the apparatus was unfamiliar to Mansonby.

Every nook and corner was pried into carefully, without revealing a trace of the prisoners. Had they known where the prisoners were at that moment, they might have spared themselves time and pains. But they could not know.

They hurried on through immense rock-hewn laundries, kitchens, pantries, and storages, and were back at the starting point. The tunnel guard had nothing to report. The only sounds were the light splash of the fountains, the occasional twitter of birds, and a sound which might have been from some sort of ventilating system.

Not a clue of those whom they sought so anxiously.

"And not a sign" complained Mansonby, "of any sort of machinery. There should be extensive electric plants —*must* be somewhere—must be machinery for half a hundred purposes. There would be—" he spread his hands eloquently. "Which means that we've uncovered only a small part of the works. There are several hundred inhabitants who are somewhere about. But I suppose it would be expecting too much for this man to let us into anything he didn't want us in."

He interrupted himself to answer a call on his pocket radio. Marlin's voice was perturbed. "Chief, that fellow's given us the slip. How he did it, I haven't the slightest idea. First thing we knew he wasn't here. You'd better hurry back. There's mischief brewing. Sounds as if the whole population was up to something. I don't like the look of it at all. Better hurry, Chief. They may be fixing up some trap for you down there. It doesn't look good to me at all."

Marlin awaited his censure in silence and looked up with astonished relief when his Chief slapped him on the shoulder with a peculiar quizzical grin. "Never mind, old man, it doesn't really matter. He hasn't gone far. He's going to be hard to hold; but I don't think he'll give us the slip. And I have an idea of my own about the population. Just wait."

"He said he'd be back in a few minutes, Chief, but of course—"

They heard a chuckle, and Ello-ta stepped out of nowhere.

"Pardon me, Mansonby, I hope you didn't think I'd run away after surrendering myself, but—I took the liberty of—er—going after Miss Lawrence and your wife." He stepped toward Marlin and Norala and held out his hands. "All right, gentlemen. I'm your prisoner again. My furlough is over."

Marlin started forward, but Mansonby shook his head with a grim smile. "Let him alone, Marlin. He won't get far away." Mansonby's face was that of a man who knows exactly what he is going to do.

Maltapa started to speak, but was again cut off before he could unburden his mind of whatever was on it. It seemed as if Ello-ta did not want him to say it—was determined he should not. As if it might interfere with something he had planned to do. Ello-ta spoke up quickly.

"How do you like our swimming pool and things, Mansonby?" he smiled, as genially as if they were all friends together and trouble and fighting were unknown.

"Very nice and—astonishing," answered the detective, "but where's all your machinery?"

"Oh! Didn't you find that? Too bad. You'd appreciate it. Why, all those things are in the basement of the living quarters, if I may put it that way—basement and sub-basement. But never mind. There's enough time. You'll not be leaving—er—at once, I don't suppose."

If Mansonby was worried, his face did not show it. He gave Marlin a tight-lipped smile.

"And where are your people, and your—"

"Prisoners? You're persistent, Mansonby. Excuse me, but the prisoners are—engaged just now. The two ladies wished to go into the—prison, and I—er—permitted them. As to my people—well, probably you'll see them, Mansonby—probably you will."

THEY had been standing at the entrance to the small room in which Ello-ta had been guarded. At that moment the two women referred to appeared in the doorway, accompanied by a ravishing beautiful girl of 19 or 20. The latter stepped forward fearlessly and smiled up at Mansonby. This girl's face might show many emotions, but it would never show fear.

"You are Mr. Mansonby, I'm sure. I am Adrienne la Coste, of Paris, and a very dear friend of Signa." She did an amazing thing, then. Leaving the two women, she went to Ello-ta, and slipped her hand through his arm. "Allow me,"—she paused dramatically and turned to Ello-ta with a little mocking flourish—"to present my distinguished and very dearly beloved husband, Mr. Zah Ello-ta, derived originally from the planet Mars, lately of the Republic of Ceres, only now returned from that so dear Paris, where he had been to steal me for a bride."

Maltapa Tal-na sprang forward, his face lighting, and his eyes fairly bulging. At last he was to have the chance that he had sought to speak. "Ello-ta! Then it is indeed true! You are of the illustrious family of Ello-ta, ancient Martian statesmen, who ruled the planet hundreds of years ago! Man, man, the Ello-tas and the Tal-nas were ever allies and friends!"

"True, descendant of warriors," smiled the Cerean gravely, "and I thank you for your words. The Cereans are the remnant of my people. We have not been illustrious for a great while. But to such home as is left the last descendant of the Ello-tas, you are welcome."

The great Martian gripped the proffered hand with such effect, that Ello-ta gasped. "The Tal-nas were ever strong, Maltapa," he smiled quizzically, recovering himself.

"And the Ello-tas wise" rejoined the Martian, relieving the pressure slightly.

But the fascinating Adrienne was pouting adorably and tugging at the arm to which she clung. "Not the *last* descendant, *mon ami*, for I mean to give you sons to keep the name illustrious. In *la Belle France* on our bonny planet Earth, where there is room, they will let us have a dozen."

The two visiting ladies smiled the smile of age-old

feminine wisdom, and kissed the young girl. Ello-ta beamed down on her fondly and turned to Mansonby. "As the first Cerean to wed a Terrestrian woman, and lest you decry her union with a—Beast-Man, let me in some slight degree—" He was tugging at his fur covered wrists as he spoke.

Mansonby put up a defensive hand. "Stop it! I know all about it. I picked up the clew that led me to the solution, from the floor in there where someone had dropped it." He drew from his pocket a portion of the sleeve of a skin-fitting garment of fur.

Ello-ta bowed with a smile. The fair Adrienne whispered into his ear, and he excused himself to reappear soon in approved European garb.

"Now, Mansonby, there's that matter of refreshments."

"And the prisoners," insisted Mansonby.

Ello-ta laughed. "The one will dispose of the other, my friend."

"Then must I decline," dissented the detective, "for I cannot bring myself to eat the prisoners I have come so far to save."

Without more ado, Ello-ta offered his arm to Signa Latourelle, and Marlin to Therma Lawrence, leaving the third lady to attach her irrepressible and irresistible self to the bashful Martian, Maltapa, doing her own introducing.

Whereupon the President of the Republic of Ceres led the way through the audience chamber and to a doorway that had somehow come into mysterious being, revealing a vista that caused the visitors to gasp with astonishment and delight. For there was such a vast and beautiful hall as might have sprung from the pages of a fairy book.

FULLY a hundred of the foremost Cereans, all men, clad acceptably, rose from their places at two long tables. A third table was set but its benches were unoccupied. But another company began at once to file in and take places at this third table. They were mostly women, several on the arms of Cereans. The women were unquestionably of Tellurian nativity.

"My dear," said Mansonby to his wife, fixing her with an accusatory finger, "you've been cheating me."

Her answer was a dazzling smile. "Ah-h-h!"

After all they proceeded to consult the "refreshments."

"The enigma about the whole thing to me, Ello-ta," Mansonby was saying to the President, "is why the very devil you didn't just come right to Earth and settle down and marry. There was no need to take your wives by force and carry them 150 million miles away. I'll warrant Miss La Coste would have had you in Paris as soon as here."

"Ah, Mansonby, there's where you are going to embarrass me. In a way, you are right. In another—well, we all know much now that we did not then. We did try that way first. With a few of my men, I spent some time on Earth, scouting out the land, with precisely that purpose. That was some time ago. But we found the conditions unfavorable."

Mansonby's eyes opened. "Unfavorable?"

"Well," explained Ello-ta, with an apologetic gesture, "we discarded our—beastly trappings—and remained for some time. But we found that a great war had overspread much of your planet, and we had to run and hide to keep them from making soldiers of us. The land was a great beehive of soldiers and warlike preparations. We had secreted our ships, and all our protective paraphernalia in the mountains, and barely managed to reach them and escape. We crossed the great ocean to the west of the Americas—the Pacific, I think it is called, but it was anything but pacific. It, too, was crowded with fleets and its air dark with aircraft. So we went on farther into the west. But the races were—not such as we cared to mingle with.

"So you see, everywhere we were cheated of our purpose. The inhabitants of Mercury and Venus were behind Earth in many ways, so we decided to postpone the matter. It was too grave a thing to settle precipitately.

"But we could not wait much longer, and after a careful preparation, we returned to Earth, with what result, you know."

Weeks passed. The ensuing visits of the passengers of the fleets to the subterranean homes of the Cereans, in revealing to them wisdom and advancement far beyond their own, effectually removed any feeling of superiority they might have had, and the return receptions upon the fleets caused budding friendliness to blossom and thrive right lustily.

In the end, the younger Cereans—beast-men no more—embraced the cordial invitations to leave their somewhat difficult home for quarters on whatever planet they might choose, assured they might wed whom they could persuade. The older ones elected to stay.

The Cereans' vessels, peopled indiscriminately of the three worlds, and the Tellurian and Martian fleets with a similarly mingled passengering, set out for Mars and Earth. It would be a long trip, as Mars had now passed millions of miles ahead of Ceres along its elliptical path around the Father Sun.

"We have achieved a brilliant victory, Marlin," said Mansonby smilingly one day to his chief assistant.

"You were right about the landing, too, Chief," said Marlin, with a broad grin. "It was dead easy."

Whereat Ello-ta smiled also.

"Still," grumbled the Martian giant, "it wouldn't have hurt to have had a little battle first."

"You adorable old bear," laughed Therma Lawrence happily, as she unblushingly climbed upon a chair to kiss the abashed warrior.

One of Mansonby's first acts on reaching Earth was to make a personal call on Astronomer Ventrosino, at the Major Observatory, to thank him for the hint that had sent him to Ceres.

"What do you want now, Mansonby?" growled the astronomer, looking up from an abstruse calculation.

"To thank you, old bear, for being the first to discover that Ceres was inhabited."

Ventrosino became apoplectic. "I did nothing of the sort! Quite the reverse. There's no air, no gravity, no—nothing. Go away, Mansonby! You're an ass! You hear me? I have no time for your foolishness!"

The ancient and honorable people of Ello-ta—sometime the Beast-Men of Ceres—have scattered to this and to that planet of the Solar System and mingled their illustrious blood with that of their adopted peoples. From their pursuit (and capture) rare friendships have arisen, not the least of which binds the group consisting of Mansonby, Sanderson, and Zah Ello-ta, on the masculine side, and Therma Lawrence, Signa Latourelle, and Adrienne La Coste on the feminine.

The fascinating Adrienne has redeemed her pledge that the name of Ello-ta should not die.

Ceres has long swung on through the monstrous voids half unpeopled. But a holiday ship is preparing to visit her soon with the Ello-tas and their friends. And there will be no need of an arsenal; and there will be no thought of ultra-violet or of infra-red. There will only be a pause on the way to pick up the warrior, General Maltapa Tal-na, now Chief of Police of all Mars, who is suspected of still secretly lamenting the charming battle so incontinently swept away.

The End.

THE MURGATROYD EXPERIMENT

By Captain S. P. Meek, U. S. A.

(*Continued from page* 89)

bits with the fungus and turn him loose with the others. It probably will have no effect, but it is possible that it will have. When you have done that, take another portion and float it on a saline solution of basic nitrated protein in order to increase our supply. We must develop from this sample, a fungus which will attack the plant people and do it with great rapidity. Mitshumi's fungus, as you know, works very slowly."

IT is useless for me to try to describe in detail the experiments that followed. I am not a biological chemist and I did my share of the work almost blindly. Even Eileen's highly trained mind was not a match for the brilliant scintillating genius of Professor Holmburg when working in his chosen field. Only ten days elapsed before Eileen perfected the very fungus that he had been trying to develop.

Meanwhile, it was very evident that the plant people were increasing in numbers at an alarming rate. The whole island seemed to be swarming with these new monsters and at times they swarmed around the laboratory in droves, attracted by the smell of animal flesh and ineffectually attacked the walls and doors of the building and battered at the vitriolene windows and gratings.

"What are their plans?" I asked the Professor.

"When they number one hundred thousand, they will be ready to strike," he replied. "They will radio in your name for a large number of transport planes and will capture them on arrival. With these planes they plan to invade the other islands of this group. Once they have a foothold, nothing will dislodge them. When they have all the islands under their control, they will invade Asia and the Americas simultaneously. Prolific as they are, nothing can stop them. We must end them before they leave here."

The tests that we made on the plant rabbits were highly successful. The innoculated rabbits drooped and withered in a few hours and the disease proved to be highly contagious. The only problem left was that of starting the disease outside of the laboratory walls. The idea of broadcasting the spores from the laboratory windows was attractive, but a failure. To be effective, the fungus from the culture had to be injected directly into the plant creature that it was desired to infect. Our next idea, of turning loose a few infected rabbits was also a failure. An infected rabbit would infect another like animal, but would not infect a plant dog or cat or vice versa. Evidently, we would have to capture a plant man or woman and infect him or her.

I offered to sally forth and try to affect a capture, but neither Eileen nor the Professor would hear of it.

We spent many an anxious hour in earnest consultation, attempting to find a solution, but it was the immense humanity and the dauntless courage of the Professor which finally suggested the course we pursued.

"I am about to die," he said, "I have no hope of living more than a few weeks at the outside, and by my death, I can save mankind. The only course of procedure that offers a chance of success is to change me into a plant again, infect me, and turn me loose among them."

In vain we protested the sacrifice, and I offered, albeit reluctantly, to submit my body to the change. The Professor was adamant in his attitude and the dynamic personality which had produced the fungus, was successful in determining that he should be the first on whom it should be used. We bade him a sad farewell, and coupled the pump to his veins. The experiment was entirely successful and five days later, we threw a newly transformed plant man infected with the virile progeny of Mitshumi's fungus, from the laboratory window.

Hardly had we done so than our attention was attracted by the roar of approaching motors and a fleet of thirty huge transport planes winged their way toward the landing field to their doom.

"We were just in time," I remarked and turned to Eileen. For the second time in her life, she had fainted.

The rest of the story is common knowledge. Our attempt to infect the race of plant men was successful and in every one of the planes that left the next day, there was at least one member of the crew that carried the deadly infection. They made the landings they had planned, but within forty-eight hours, the invaders had all withered and died. The disease ran its course a little more slowly on Kahoowale itself, but in a week, the ground was dotted with the dead, withered bodies of plant people and the air was rank with the smell of decaying vegetation.

We allowed another week to pass before we left our prison and ventured forth, to find the beautiful island totally devoid of animal life. The voracious plant people had killed them all. We soon located the sending set and sent forth the message that brought a fleet of three hundred military planes from the base at Pearl Harbor to rescue us.

The plant people had passed as a menace to mankind, but we found a few of the seeds sprouting while we were waiting for our rescuers and for years afterwards, an occasional specimen of the race was met with here and there, evidently from a seed that had floated for years and landed on a distant shore. The seeds would not germinate in salt water, but would do so rapidly when they reached land. We had specimens of the fatal fungus, however, and as soon as one of the plants was reported, a swift plane would be dispatched from the nearest depot with the virus needed to bring its career to a sudden close.

But one word more and I am through. Those of you who have taken the passenger liners to the gardens of Lanai have passed over Kahoowale and have seen the huge Holmburg botanical laboratory which marks the site of Doctor Murgatroyd's experiment. The next time that you go there, go to the laboratory itself and let the Director lead you to the center of the grounds. There you will find a marble slab set into the ground, marking the spot where Professor Holmburg's body was found by our rescuers. It was buried where it lay and on the slab is chiseled an inscription written by Eileen Wilbur. It reads very simply: "Friedrich Wilhelm Holmburg. The Saviour of Mankind."

THE END.

The HOLLISTER EXPERIMENT

By Walter Kateley

Author of: "The Fourteenth Earth," and "The Eye of the Vulture."

HOLLISTER stood in the center of his laboratory and surveyed the damage.

A violent rain had dislodged a large rock high up in the mountain side, and it had come bounding down the declivity, striking the end of the log building a terrific blow. The impact had jarred the whole structure, upsetting nearly everything movable in the place.

This was something of a disaster to the scientist, for a scientist has to be very methodical and accurate in his work. So it was not to be wondered at that Hollister's expression was one of deep annoyance.

He had some very important experiments under way.

Professor Hollister was a member of the faculty of one of the leading universities. But this was his sabbatical year, and he had retreated from the distractions of the workaday world, in order to give his entire time and undivided attention to a line of research work that he had long had in mind.

This research, he had reason to believe, was pregnant with far-reaching human possibilities.

He hoped to be able to find the cause and cure for the two closely related diseases, dwarfism and giantism.

For years he had made an intensive study of the thyroid gland; the gland which scientists have recognized for some time as being the cause either directly or indirectly, of all abnormalities of growth.

WHAT causes dwarfs and giants? Science to-day tells us that either is caused by glandular disorders, but what makes a whale or an elephant enormous, and why doesn't the cat or rooster take on the proportions of elephants or whales? That is something science is not prepared, as yet, to exactly explain, although we have a rudimentary knowledge of some of the reasons.

Dwarfism or giantism can be artificially produced however, and the time may not be far off, when it will be possible to artificially breed animals or human beings to almost any size desired within reason.

In the present story, the author, who has a deep insight into this branch of science, is presenting our readers with a capital story, that will make you gasp for its sheer daring.

The thyroid gland is made up of two small maroon colored organs, located in the throat on either side of the windpipe, the two being joined together by a bridge of tissue. This gland was formerly a part of the sexual gland in primates, but in man it has moved a long way from these glands, although probably somewhat related to them. The substance of this gland when examined under the microscope appears to be made up of a multitude of little imperfect spheres, lined by a layer of cells; the whole inclosing a microscopic amount of jelly-like substance, which, when chemically analyzed, is found to contain iodine and traces of arsenic.

At this time it was definitely known that the thyroid was one of the vital organs.

Surgeons had found in operating for goiter that if the gland were removed, the patient died. Hence the earlier operations for goiter were usually fatal.

It was also known that in case a child showed symptoms of dwarfism, it could often be helped by giving extracts derived from the dried thyroid gland of a sheep or goat.

In extreme cases of giantism, no one was able to say whether the abnormal growth was due to some invisible microbe or virus acting on the gland, or whether the gland was excited to too great activity by the action of some other of the ductless glands. Most all the ductless glands seem to exercise a regulating action over one another.

Hollister believed that all orders to build new tissue cells in any part of the body came from this gland; just as surely as all orders to build post-offices come from the Postal Department at Washington.

But whether these orders were sent through the nervous system or through the blood was a question. There were surely orders to build; but did they come by wire or by mail?

So the scientist had taken his laboratory equipment to a secluded canyon in the Rocky Mountains and set up shop in a deserted miner's cabin.

Here he proposed to wrestle with Nature until her secrets were divulged, or until it was time to return to take up another year's work at the sordid business of earning one's livelihood.

He had brought with him various extractions from thyroid glands of both animals and humans.

He had an especially large supply of thyroxin. This is a particularly active extract of the thyroid. It looks like little white crystalline needles done up in sheaves. It is very rich in iodine, and is very useful to speed up the processes of metabolism in case of sluggish mentality or retarded growth. It is also an effective remedy for cretinism.

AND, as a special prize, he brought an entire thyroid gland from a victim who had died of giantism. (Giantism is universally fatal).

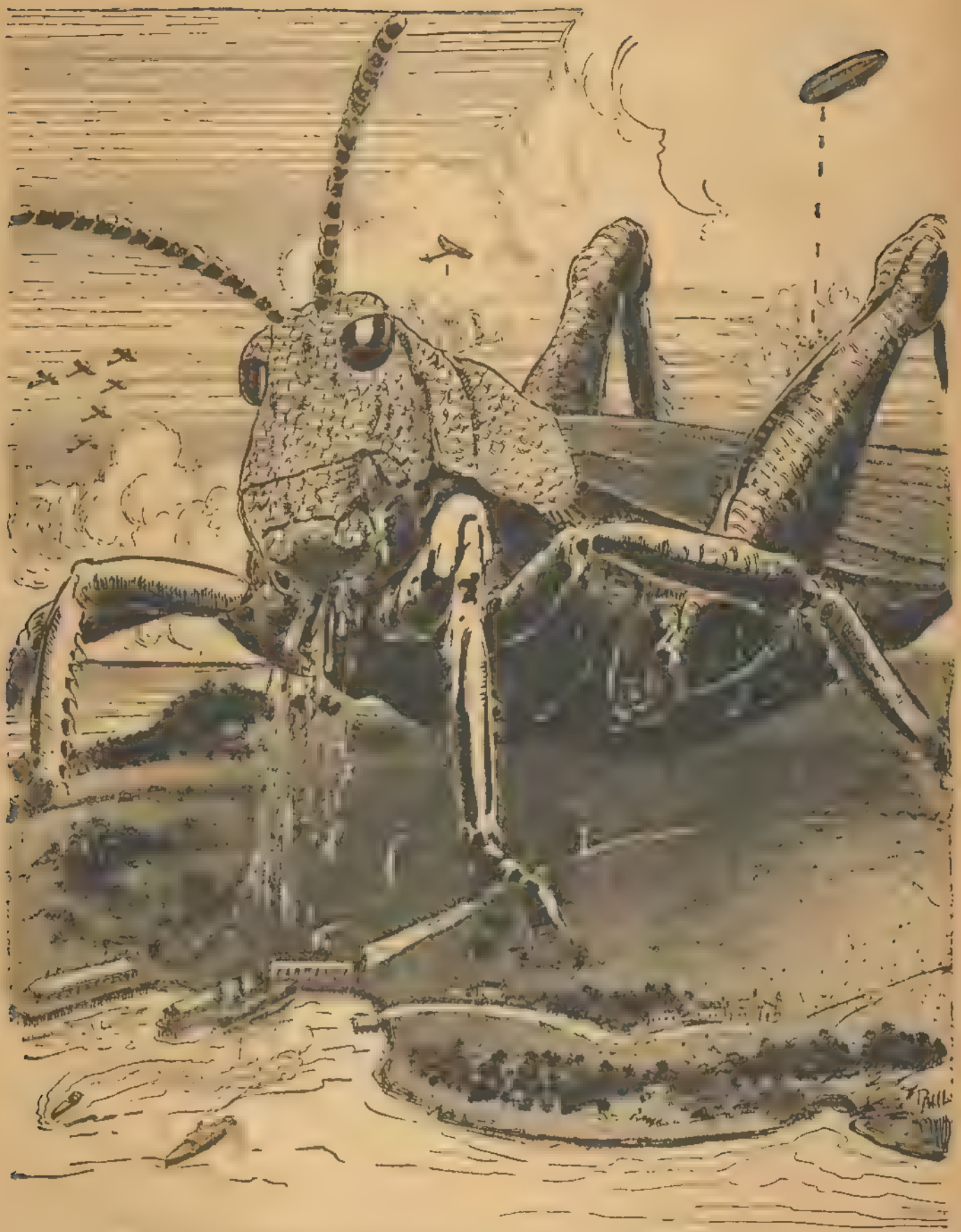
He had established quite a little colony of animals and insects, which he used for experimental purposes.

There were three or four sheep, as many goats, a decrepit horse, two dogs and some cages of mice and guinea pigs.

Since his experiments were now so numerous, he was availing himself of the fauna of the mountain country; ground squirrels, beetles and grass hoppers. He had captured about a dozen Rocky Mountain locusts, really grasshoppers, known to entomologists as *Melanoplus Spretus;* and to the farmers of the mid-west as the pestilential grasshopper.

It is he and his kind that sometimes descend in great clouds on the farm districts and devour every green thing that grows. He is perhaps the most destructive of all the *Orthoptera.*

In these young grasshoppers, the scientist had been



He gulped up the warehouse and the stacks of crates on the docks; then he snatched the steamboat out of the water and ground it to fragments in his great jaws....Then as a few last tidbits, he lapped up the loaded vans.

unable even with his high-powered microscope, to locate any organ recognizable as a thyroid; but he had found many things of interest in their make-up. In fact, he had spent so many hours in observing their peculiarities that he had reproached himself with wasting time that properly belonged to thyroid research.

He had injected derivatives from both healthy and diseased thyroids into the bloodstream of the young hoppers. (A grasshopper's blood does not flow in veins, as does the blood of higher animals, but travels along in green streams among the liquids and semi-liquids of the organs as the Gulf Stream flows free in the ocean—unconfined, but never-changing). So any substance introduced into one of these streams was pretty sure to find its way to whatever organ served as a thyroid gland.

The scientist had captured most of the insects during their second instar. (They shed their hard inelastic skins or shells five times before coming to full-winged maturity. The period between these sheddings is called the instar). And after treating them, he had kept a half-dozen of them under a bell-jar on the windowsill, where he could have them under daily observation.

And now, upon finding the laboratory in a state of disorder, his first thought was for the window colony. He anxiously approached the bell-jar, and saw that two of the hoppers had escaped, and were just in the act of crawling over the sill. They were some few inches apart, and he grabbed for one with either hand.

He secured one of them; but the other one made a wild leap and landed far outside the window in a clump of tall weeds. "It was the big one too," said Hollister in exasperation, as he turned to deposit the captive in the jar and straighten up the disorder.

For several days Hollister had noticed that the one who got away had been growing much faster than the others, and he had commenced to hope that he had succeeded in hastening his growth. And now he was out in that patch of high weeds and brambles, and it was useless to look for him.

* * * * * * * * *

BURNT CANYON was the merest trace of a village, stowed away in the Rocky Mountains.

There was a post office, a small general store, dealing in prospectors' equipment and a very limited line of dry goods, package groceries and air-tights.

One afternoon in early July, the sheriff and a few loafers were lounging in the shade in front of the store, when they saw a cloud of dust coming up the trail. Then Red Gulch Pete hove in sight, riding as if for dear life.

As he drew closer they saw that he was in a state of great agitation.

He did not rein in until he reached the very door of the store.

"Any of you fellers got a bottle?" he asked excitedly. "I need a bracer. I've seen the most gosh-awful beast a man ever set eyes on," he continued by way of explanation.

The mountaineers gathered round, and some one dug up a half-pint bottle with a couple of fingers of "pizen" still in the bottom.

"Tell us about it," said the sheriff. "What did you see?"

"Well, I will tell you fellers, and you can believe it or not," said Pete doggedly.

"I was coming along the coulee down the other side of Squaw Rock. I had just passed a little patch of scrub, when I heard something hit the ground kerplunk. I scrootched around in the saddle and what I saw was plenty.

"There was an almighty big beast, bigger than this cow-pony, chawing a branch of popular plumb four feet long!

"It was a grasshopper. Yes, I said it, a grasshopper!

"He had two great eyes on the corners of his head, that looked like overgrown cut diamonds, and three other eyes in his forehead.

"My hair stood straight up, and this broncho was scared stiff."

"What did you do?" asked Sandy Girard.

"I just dug the spurs into old Bolivar and we cleared out of there like the devil chasing snakes."

"Do you mean to tell me," said the sheriff, "that you saw a grasshopper bigger than that cayuse?"

"Yes I did, sheriff, honest to God I did; and his hind legs stuck up over his back like the walking-beam on an old steamboat."

"Do you know what I think, boys?" said the sheriff. "I think when Red Gulch here made that last batch of hooch, he got some loco weed mixed with his yarbs."

The men laughed hilariously.

"Well, it's just as I expected," said Pete as he wiped his steaming brow; "not a danged one of you has got sense enough to believe the truth."

IN the latter part of July an Idaho newspaper carried a story to the effect that a party of surveyors had sighted a large animal on the side of a distant mountain. Through the field glasses he had appeared to be no less than a hundred feet long!

In general outline he had resembled some great beetle or grasshopper. They had sighted him just at dusk; early the next morning they had set out to find him, but on arriving at the place where they last saw him, they found he was gone. Yet there were unmistakable evidences that he had recently been there. There were huge tracks in the hard soil and many trees and bushes were eaten or broken down.

This story was quickly taken up in all parts of the country by the Sunday supplement scientists; and wild tales of the appearance of a vast and awful prehistoric monster were paraded before the eyes of a bewildered public.

Now he was a great dinosaur that rent the hills with his terrific roaring; again he was a great grasshopper-like beast that hopped from mountain peak to mountain peak or flew from crag to crag.

But strange and unbelievable stories persisted.

Now a hunter, now a forester, or perhaps a party of prospectors would report seeing the monster. And at length it was reported that the crew and passengers of a transcontinental train had distinctly seen him at no great distance.

At last it became patent that some unusual animal was really abroad.

Moving picture men from all quarters made a wild rush for the mountain country; and a group of such organizations as the Geographic Society, the Smithsonian Institute and the National Geodetic Survey, hastily prepared an expedition consisting of many of the country's most eminent naturalists and scientists.

The expedition was provided with elaborate equipment and set out to find the monster.

IT was early in the morning of September second.

Lieutenant Gray and Professor Comstock stood on top of the highest pinnacle of the ridge, field-glasses in hand.

Some distance away on a little table-land, stood their plane. The pilot and the mountain guide were busy

preparing some bacon and coffee over a small camp fire.

The Lieutenant and the Professor were joint commanders of the expedition now encamped in the valley below and behind them.

It was a cumbersome and unweildy aggregation of trucks, pack mules, saddle horses, tents, supplies and equipment.

The two men might have remained comfortably in their bunks, and left the scouting expeditions to flight-captain Holmes and his men. But they were eager to be the first to sight this monster relic of prehistoric times, as they supposed it to be.

At the earliest peep of dawn they had turned out, snatched up their glasses and notebooks and flown to the top of the ridge that overlooked several counties, some of them largely turned up on edge. It was from this region that all the stories had come regarding the huge animal.

Even though they might discover nothing, both men felt amply repaid for their hazardous trip; for it was a glorious morning, and the view was one of superb beauty and grandeur. The exhilaration of the crisp bracing mountain atmosphere was worth a long journey to experience.

The sun had gilded the higher summits with its golden flood, and the great billows of mist in the valleys seemed agitated with a fear that the oncoming rays would attack them before they could roll away. Yet they had no definite plan of flight, and pitched and tossed aimlessly around some of the seeming island peaks, which optical illusion caused to float in their midst.

But a change was rapidly going on. The mountains were getting higher. One was free to fancy that the mists were sinking, or that some invisible force from below was thrusting the peaks up through the surface of cloud.

As the line of visibility descended, the men trained their glasses on the landscape and eagerly scanned each valley and hillside.

The lieutenant was first to speak.

"Do you see something shiny reflecting the light away over there to the right, just between the two little peaks?"

"Yes, I do see it," answered the professor, after a moment's search. "It is quite a pronounced reflection. You will notice that it extends even to the east of the more easterly knob."

"I imagine it must be some outcropping of mineral deposit—mica, perhaps. It may have been exposed by the erosion of recent storms."

The lieutenant was not satisfied. He took out his handkerchief and wiped his lens, and then adjusted the focus very carefully. For a long time he looked steadily at the shining object. At length he remarked: "I wish we had a more powerful glass. It seems to me I can make out a definite outline in some places. Let's ask the guide about it."

They called the guide. He assured them that he had never seen any mineral outcroppings in that locality; and upon observing the object in question, he professed to believe that it was not a land formation. But he also agreed that it was entirely too extensive to be the object which the expedition was seeking.

However, after breakfast, it was decided that they would fly over to the spot and investigate.

An hour later they were on their way. As they approached the shining object, their glasses trained on its surface, it gradually took shape. Its general outline was indeed that of a gigantic grasshopper; but the contours of the outline were very imperfect, crumpled here and distorted by trees and boulders there. It was indeed a weird sight. They flew over it and peered down on it without the glasses.

It was in such a rugged locality that the pilot dared not approach too closely; so they were unable to make out anything in detail. From one angle it would appear like a great hollow framework; and from another, it would almost disappear, fading into the natural landscape.

After a brief consultation they decided to return to camp and provide themselves with cameras and a broadcasting outfit, and with the aid of other aircraft return to some safe landing-place in the near vicinity, and from there make their way on foot to the strange apparition.

In the early afternoon they landed about a mile from the place, twenty men equipped with instruments and paraphernalia, and made their way, not without difficulty, to the carefully located spot.

What they found there was entirely amazing, but somewhat disappointing.

PERHAPS the clear and concise language of the Professor's first wireless message to the outer world will state the facts more clearly than any other.

It was as follows:

"Camp Locust, near Bucksaw Ridge.

"The expedition today discovered the discarded shell or skin of a giant grasshopper, in a very fair state of preservation.

"A careful survey has established that the remains are 320 feet in length. This would indicate that the creature who recently occupied it must have been at least 500 feet in length, over all.

"The shell is about fifteen inches thick, and is composed of a very hard and nearly transparent material, resembling the ordinary chitin covering of common insects.

"From hurried observations it has been ascertained that this is probably the fourth molting of the great locust; in that case he is no doubt by this time provided with a complete set of wings and is able to fly aloft.

"Workmen are removing some sample fragments of the shell with such implements as are available; and these fragments, together with photographs, will be forwarded to the Smithsonian Institute at once.

"We regret that this shell is altogether too gigantic to be given a place in any museum, even if it were humanly possible to reduce it to sections and transport it from this wilderness."

Needless to say this message, picked up and relayed to all parts of the country, and abroad, created no little alarm.

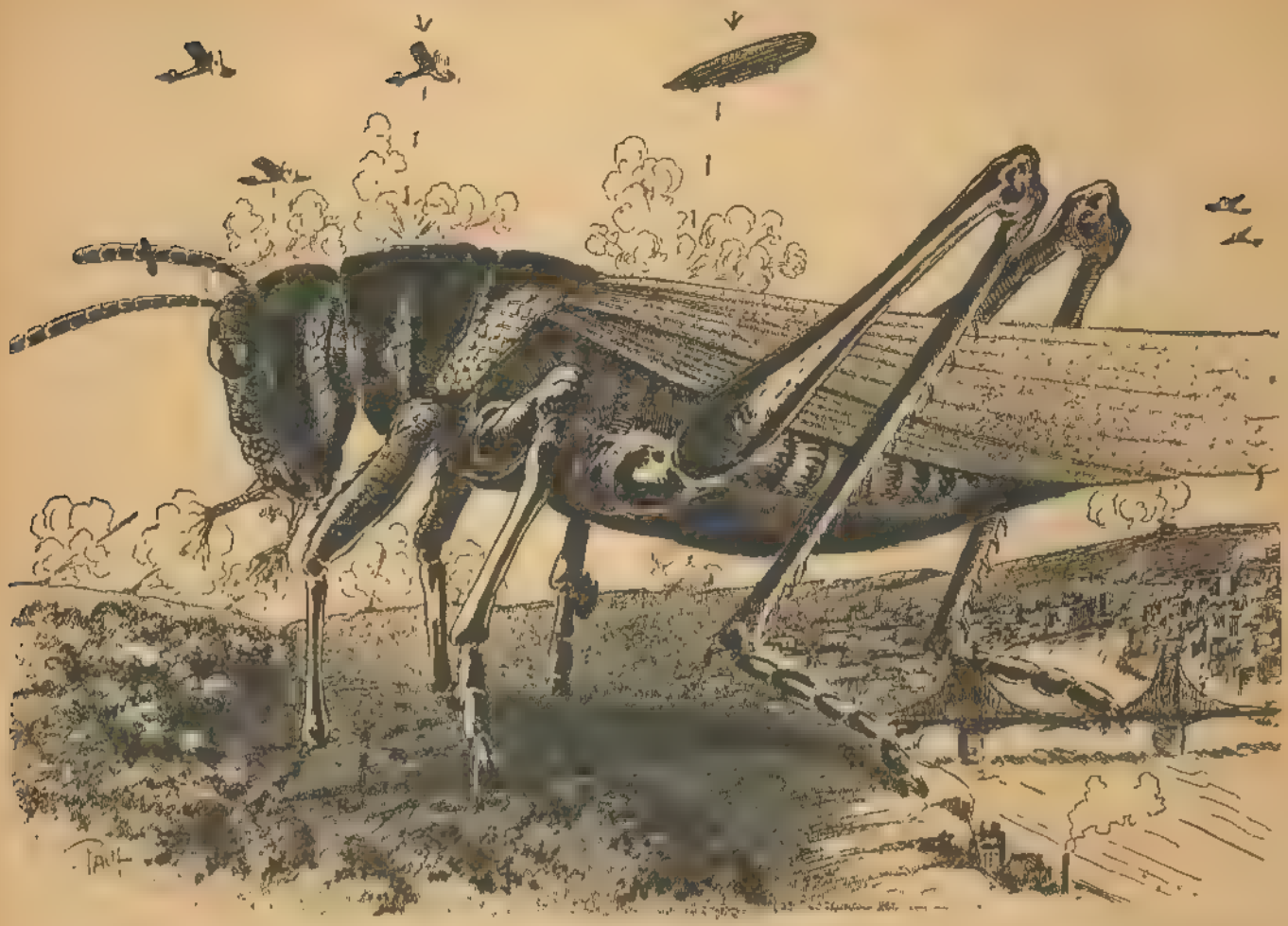
There could be no denying that if such a monster, clad in 16-inch armor, was really at large and on the wing, there was no knowing what he might do. It was a situation that called for action.

Nothing further was seen of the dread monster for several weeks; in fact, not until the last week in October.

But on October 26th, the people of many localities in western Nebraska reported seeing something that resembled a huge winged dirigible high in the sky. But it was much larger than any known dirigible; and it passed with incredible swiftness above the clouds.

Its wings fluttered very rapidly, and its flight was attended by a rapid crackling noise, much louder but otherwise not unlike the sound made by the common flying grasshopper so familiar in these parts.

But if the early reports of the monster's size had been considered exaggerated, they were now absolutely



The animal munched a small grove of trees and seemed to take a drink from the river. Then, with one hind foot on the old Snelling Bridge across the Mississippi, and the other on the limestone ledge, he made a little hop and landed a few miles away.

beyond belief. For the inhabitants declared that he could be no less than a quarter of a mile long!

All day long the reports of the flight of the monster were broadcast, and communities throughout the middle west followed his course with apprehension, fearing that it might so happen that he would alight in their midst.

He soon turned his course, and coming round in a great circle, finally alighted in the forest reserve of Sequioa Park in California.

Here he wrought great havoc.

Some of the great sequoia giants he denuded of all their limbs and foliage; and others he tore up by the roots or bit off close to the ground.

HUGE trees thousands of years old and hundreds of feet high were mere fodder to him.

Sometimes he ate the entire tree; but a few great logs twenty feet in diameter were dropped on the ground.

He only stayed a few hours, however. Then he rose again and betook himself to his old quarters in the mountains, leaving a large tract of the forest reserve a hopeless wreck. Where his huge body had settled down to earth, the trees were not only broken off, but were literally ground into the soil; and where his gigantic feet had dug into the ground when he leaped into the air to take flight, the soil and even huge rocks were tossed about in hopeless confusion.

Then on the twelfth of November the alarm went up that the flying monster was again on his way east. This time he veered a little to the north and made a bee-line for the Great Lakes district.

Over a part of Nebraska, South Dakota and Minnesota he flew; and finally he alighted with a great jar that shook the surrounding country, near the twin cities of Minneapolis and St. Paul, only a few miles from the junction of the Minnesota and Mississippi Rivers.

In fact, he came down in plain sight of the barracks of old Fort Snelling. It so happened that Fort Snelling was just then the headquarters for a great practice maneuver, staged by the United States regulars; and a quantity of artillery and war equipment had been concentrated at this historic point.

Within a single hour of the monster's alighting, instructions were received at the fort from the Secretary of War at Washington to give battle and if possible to destroy the creature. The heavy artillery was limbered up, and the aircraft sent aloft with heavy bombs to drop on the monster's head. At a prearranged signal, the artillery opened fire. The airplanes commenced to drop the bombs, and a great cloud of poison gas was released a half mile to windward of the creature. But all was apparently without effect.

The animal munched a small grove of trees and seemed to take a drink from the river.

Then with one hind foot on the old Snelling Bridge across the Mississippi, and the other on a limestone ledge, he made a little hop and landed a few miles away, near the State Prison at Stillwater.

The great bridge was left a crumpled mass of wreckage.

All the frame houses of the district were blown away or at least damaged by the terrific wind created by the flutter of the huge wings.

THERE were found to be but a few casualties; but a reign of terror spread over the two cities, such as

might have been caused by a deadly pestilence or an invading army.

The next day the monster resumed his flight eastward, alighting again in one of the islands of Lake Erie. This island was largely given over to grape-raising; and the inhabitants were in the midst of gathering the crop.

Here the great grasshopper devoured a few trees loaded with ripened fruits, and then cropped a few acres of vineyard. Evidently the ripe grapes pleased his huge palate. The entire crop of this island is taken care of by a co-operative growers' association at harvest time, and shipped by boat to Cleveland and Buffalo for sale.

Huge quantities of grapes had been gathered at the island's only dock, and a steamer was at the pier, loading.

There were a great many hundreds of tons of fresh-picked grapes; some on board the ship, some in the warehouse, some stacked in crates on the docks, and even the surrounding streets were crowded with loaded vans of the fruit. Unfortunately the great hopper spied this array, and he pounced upon it.

He gulped up the warehouse and the stacks of crates on the docks; and then he snatched the steamboat out of the water and ground it to fragments in his great jaws.

The engine and some of the tougher parts of the ship he spat out and left lying in the edge of the lake.

Then as a few last tidbits, he lapped up the loaded vans and then went to sleep for the night.

The next morning he resumed his flight, followed by a swarm of airplanes and a couple of dirigibles that joined the pursuit at Cleveland, Ohio.

Like some vast eagle followed by a swarm of sparrows, he took his way across Ohio and Pennsylvania, and approached the eastern coast.

The people of the entire nation now commenced to hope that he would fly out over the ocean and disappear.

Practically all industry was suspended, and the people gathered round radio receivers, either in public places or in their homes.

Thus they followed the course of this unprecedented flight with bated breath; and over the line in Canada the excitement was also intense.

Even European countries were alarmed lest the Atlantic might not prove a barrier to the monster; equally at home, on the earth or in the heavens.

With his great shadow hurrying along across the landscape like a fleeting omen of doom, he sailed out over the fair fields of Maryland, headed for the blue waters of the Atlantic.

But as he neared the city of Baltimore, his flight became less rapid; and he descended from his high altitude, and after a moment's hesitation in midair, plunked his great form squarely down upon the defenseless city.

The force of his alighting demolished business blocks and street cars; and as he closed his great wings he knocked down a number of tall chimneys.

Traffic was demoralized, and the populace were panic-stricken. News of the disastrous landing was broadcast to the surrounding cities, and a wild rush to see the monster brought sensation hunters and government officials by train, by automobile, by boat and by airplane from New York, Washington, Philadelphia and many of the lesser cities. Most numerous and in the van of all these, were the newspaper reporters and motion picture men.

Eugene Gordon has written very lucidly and graphically about the scenes that took place in Baltimore, in his new work "Great Moments in Great Cities"; and I feel that I cannot do better than to quote a chapter from his book. Mr. Gordon says:

"It was about four o'clock in the afternoon. I was sitting at my desk writing when my chauffeur hurried into the room and exclaimed: 'The radio is announcing that the great flyer is coming over the town. I thought you might like to see it.'

"I dropped my pencil and hurried out into the yard. We heard a terrific crackling noise far overhead, and looking aloft, I saw among the clouds, the great outline of the monster, descending to earth. He was of such tremendous size that he literally seemed to fill the whole sky; and as he sank lower, the flap of his wings created such a draft that we were unable to keep our footing, but were obliged to grab hold of the buildings for support.

"He passed directly over us, and came to earth with a great thud that shook the whole neighborhood. He had apparently landed about a mile from us, in the direction of the downtown district and the bay.

"The runabout stood in the drive; and leaping into it, I directed the chauffeur to drive in all haste to the scene of the tragedy; for I was sure that such a huge mass could not alight in a thickly populated city without tragic consequences.

"As we hurried along the street we passed a great many other machines all going in the same direction, and soon they became so numerous that we decided it would be best to seek a side street, make a detour to the water front, and approach from that direction. And it was fortunate that we did so, because the main streets were soon so full that vehicular traffic became jammed.

"Making a wide circuit, we arrived in sight of the huge monster, facing squarely in our direction.

"WHEN we were about thice or four blocks away we were stopped by a cordon of police, who would not let the machine pass.

"Leaving the runabout to the care of the chauffeur, I slipped past the police, and casting all thought of danger to the winds, ran to get a better view of the beast.

"Coming around a large warehouse I came in full sight of his great head, towering up higher than any of the surrounding buildings.

"There were his two great globular multiple eyes, as big as street-front windows. I noticed that they were divided into a great many sections, exactly like very much enlarged honeycomb sections. They were colored with patches of hazel-brown pigment.

"Between and above these were three simple eyes, arranged in the form of a triangle, and resembling oval panes of glass set in armor plate.

"And there was his great mouth, large enough to take in an ocean liner.

"He was slowly crushing a huge elm tree that he had picked up, and the vast jaws were moving horizontally instead of vertically, as one would expect.

"They resembled parts of some colossal machine, closing together from side to side, and then slowly parting and moving together again.

"I noticed that the mandibles were of very unequal size; the left and larger one projecting far over the other. His two great restless antennae projected from the upper portion of his head, coming through the surface as rhinoceros horns. They were in about a dozen jointed sections, and were as long and large as the neighboring smoke-stacks. They were made of material resembling rough bone, and were bending in and out, tapping and exploring everything within reach.

"One great foot was stretched across a street, clutching the curb-stones on either side, as if to pull them

together. The foot had a huge black claw on each side, resembling in shape an overgrown buffalo horn. Between the two horns and in the middle of the foot was a great padded ball. This ball was resting about in the middle of the street.

"Along up the foreleg were a number of great globular pad-like protuberances, the use of which I did not understand.

"There were also great sharp, hornlike points, projecting at an angle of about thirty degrees from the leg, and pointing footward.

"I afterward noticed that all his six feet were very much the same.

"As I stood gazing spellbound, a man came up beside me and spoke to me. I recognized him as one of my near neighbors. He is a well-known entomologist.

"'IT is a genuine, overgrown locust,' he exclaimed in awed enthusiasm. 'He is perfect in every detail. There are the two pairs of jaws, one above the other; their movement is in a transverse direction, true to type. The multiple eyes and the single auxiliary eyes between, are all in their true position.'

"'Come on. Let's go round and see his wings and legs. Isn't he perfect?'

"We dodged between two buildings and came out alongside. We saw that firemen and policemen were engaged in rescue work, bringing people out of the buildings that had been damaged. We saw no dead bodies, although it did not seem possible that all could have escaped death.

"We turned our attention again to the great body. It was made up of several huge ring-like bands or segments, peculiar to all locusts.

"'Those bands are the animal's skeleton,' explained my companion. 'They are hard like a shell; we call them sclerites. They are made up of chitin, a derivative of carbohydrates.'

"'Near the bottom of each of these sections you will notice there is a large hole.'

"I had noticed them; and they looked for all the world like a row of portholes along the side of a ship.

"'They are breathing holes,' he went on. 'He doesn't breathe through his head. See how that little tree leans first toward the hole and then away from it? That is on account of the air currents. Most insects breathe that way.'

"'Do you see his ears? Those large, nearly round spots, that look like frosted windows, just back of and a little above where his wings join his body, are his ears.'

"Just at that moment the insect raised up his great hind leg, and we retreated hastily.

"But he only rubbed it along the lower edge of his wing, producing a great rumbling noise.

"'We need not be alarmed,' said my companion. 'He is only fiddling. You know that is the way the locust fiddles.'

"'But how does he make that tremendous crackling noise that we heard when he was coming?' I asked.

"'Well, if his wings were spread out,' he explained, 'you would see that they are divided into two sections. The front section is long and slim, and the rear one wide and triangular in shape. In flying, the surfaces of these two sections of wing rub together, causing the noise.'

"'In the normal grasshopper it is only a rather pleasant crackling little sound.'

"'See how powerfully those wings are built! The veins look like steel girders! I wish he would spread out one of them, so we could observe the colors.'

"'I think he is going to sleep here to-night. Have you noticed how cold it is getting? Maybe he will be so chilled before morning that we can capture him!'

"'I hope they don't try it here in Baltimore,' I said. 'The city would be bankrupt trying to dispose of the carcass before it would rot.'

"'Yes,' he said, 'that would be a calamity. I hadn't thought of that.'

"'I've seen enough,' I rejoined. 'I'm going to get out of here, before he takes a notion to fluff himself with dust; you know how the grasshoppers get in the loose dust in a path, and wallow and shake themselves as a chicken does. Well, when he does that, I want to be a long way from here.'

"'Yes, perhaps we had better go,' he said.

"That night a cold raw wind came down from the north, and before morning the first touch of winter was upon us. Flurries of snow were predicted for Ohio and Pennsylvania. And in the morning the great grasshopper seemed to be chilled stiff.

"The city government, the state organization and the authorities at Washington were all quick to take advantage of the situation.

"A state of emergency was declared to exist, and the city was placed under military rule. All the available ships of the navy were ordered into the harbor, and the Secretary of War came by special train from Washington, and was quickly joined by the governor and the mayor.

"A hasty consultation was held, and in spite of the protests of the mayor and all the local authorities, it was decided to try to capture the creature while he was overcome by the coma incident to the sudden cold spell. The President wired a suggestion that the creature might be killed by using a great quantity of dynamite and powder; but the idea was discarded because of the damage that such an explosion would do to the city, to say nothing of the destruction that such a floundering monster might do in his death-throes.

"'Even this plan will be a great burden for Baltimore,' said the Secretary of War, 'but the city should be willing to bear it for the good of the country at large.'

"SOLDIERS and state militia were mobilized and set to work with derricks and steam shovels to make huge excavations and fill them with concrete, thus forming what the engineers called 'dead men.' Whole blocks of buildings were dynamited and demolished to make way for these emplacements. Meanwhile, all the available chains and cables were brought from neighboring states, commandeered by the War Department.

"Huge cranes were brought and with feverish haste an army of soldiers and volunteer workmen set to work to truss the monster's wings to his body and to run great chains and cables from his head and legs to the heavy concrete anchors.

"The larger battleships of the fleet were lined up in the harbor and fastened together with a great cordon of ships' cables; and from this fleet, the largest and strongest steel cables obtainable were run to the creature's antennae, and made fast by warping with hundreds of strands of heavy wire and small cables.

"It was hoped that in case it was found impossible to hold him down, the fleet all pulling together might lead him into the water and cause him to flounder and, perhaps, drown.

"During all of the second and third days, the forces worked like mad, for it was believed that the cold spell could not last more than three days. All day and all night huge salamanders were baking the concrete dry; and more and more cables were strung around the great

wings or attached to the body and legs and made fast to the anchors.

"Then, as more cables continued to arrive by boat and train, they were fastened to concrete and steel bridges near-by, and looped around some of the largest and most substantial reinforced concrete buildings in the vicinity.

"Then a large number of heavy locomotives were brought out on temporary tracks and made fast together with steel girders commandeered from a bridge-construction job. These were also chained to the Goliath.

"By early evening of the third day, all that it was humanly possible to do had been done.

"Soldiers cleared the surrounding streets, and all citizens were warned to withdraw to a safe distance.

"Then the city, the state and the nation, figuratively speaking, held their breath.

"The radio all over the Central and Gulf States was heralding the coming of a warm wave.

"Next morning all about the city was enveloped in a cold grey fog, and the sun rose blood-red in the east.

"As it climbed higher, the mists rolled away, and there followed a warm and balmy November day.

"I took my glasses and with a number of others, climbed to the belfry of a tall church tower, perhaps a mile away from the center of all interest.

"From this point of vantage we could see the line of battleships in the harbor, all belching smoke in token that they had a full head of steam.

"The commander stood on the bridge of the flagship, binoculars in hand.

"And there in the mellow light of the autumn sun, glistening in its wonderful colors, was the resplendent giant, as motionless as the Rocky Mountains whence he came.

"How puny and little looked the cranes and cables that bound him! One could not help but think of the story of Gulliver among the Lilliputians. Yet we knew those chains and cables were in reality of almost incalculable strength.

"Near our point of observation, a broadcasting station had been improvised on a flat roof, and a famous announcer, brought from New York for the occasion, was telling the waiting world all that was transpiring.

"Now we heard the well-known voice that we had so often listened to with our own receiving sets, saying to the microphone:

"'Such an aggregation of mighty chains and cables has never been brought together in the memory of man.

"'It seems utterly impossible that the creature can ever move a wing or a leg. From where we are standing, the fleet with the ships all lashed together, makes a splendid showing. They are ready at a moment's notice to exert a pull of hundreds of thousands of tons.

"'Now it is rapidly growing warmer. He may come to life at any moment. You will be advised of any developments. Please stand by.'

"At a few minutes after eleven o'clock, as we stood with glasses trained on the giant, we saw one of his antennae commence to move, and of a sudden the cables to the ships were stretched taut.

"Then we saw the great head move up and down.

"The voice at the microphone resumed; we did not hear what he said.

"And then without further warning and like a great explosion, the vast creature leaped high in the air, attended by a great cloud of debris and dust.

"There was a sound of a great crashing and jangling. Then high above the city we saw the monster open its great wings in a glory of color and take its flight! The great concrete anchors and a section of the bridge and a cluster of the locomotives dangled amid the loose and flapping ends of innumerable chains and cables.

"Out over the harbor it flew, with the boat cables hanging in a great loop. These quickly straightened out, and came tight with a great splashing and crashing as some of the huge ships carreened and others almost leaped bodily from the bay.

"The harbor was filled with a vast and terrible confusion.

"The cables were broken to shreds.

"The great flyer, his huge wings crackling almost gaily, headed for the open sea.

"Then hundreds of airplanes rose like mosquitoes from the landing fields and gave chase; but hardly were they under way, when the great flyer passed from view beyond the eastern horizon.

"Realizing that their speed was as nothing compared to this tremendous flight, they one by one turned about and came back. With one accord we turned our glasses on the section of the city where the monster had recently been.

"We beheld only a tangled mass of indescribable ruins.

"And now the voice at the microphone broke in on our consciousness again. The announcer was saying, in rhythmic and rounded tones—'And now he has disappeared, perhaps forever, over the boundless wastes of the ocean'.

"And so he had.

"More than a year has passed and no trace of him has ever been found."

And so the writer ends this excellent description.

I only wish to add that scientists are still investigating the possibilities of the thyroid gland; and doctors are making gratifying progress in the use of thyroid extracts.

THE END.

The Next Issue of

AMAZING STORIES QUARTERLY

will be out on April 20th

WHAT THE SODIUM LINES REVEALED

By L. Taylor Hansen

BEFORE I begin this strange tale, I wish to remind the man I shall call "Larone," of his promise that I might tell the story of that certain night last summer, and I wish him to note that I have fulfilled his only requirement, when I publish it as fiction.

The adventure I refer to began when I stood before the old negro butler in the massive doorway of the Larone mansion and nervously hunted for the calling card which should have been in my vest pocket.

"My name is Mathews. Mr. Larone sent for me." I said hurriedly as I went through the contents of my last pocket.

"Never mind the card Mr. Mathews," a well-modulated voice answered from behind the butler who melted back into the shadows, "just step this way please."

I followed a rather rotund little man of portly dignity to a luxurious library. My eye passed with a glance over the lights, rugs, antique furniture and came to rest on the occupant of a handsome chair who slouched down in it like a badly braced scarecrow. His long fingers were restlessly turning over the pages of a magazine.

"With as few ceremonies as possible, Mr. Mathews," my guide said, touching his coat with a well manicured hand, "I am Larone, and this man is Dr. Esteban, an authority in astronomical circles on the planet Jupiter."

The lean scientist unravelled himself and clasped my hand while his keen grey eyes looked at me sharply, but not unkindly from under his crag-like brows.

"And since you have no card," my guide continued with a twinkle of amusement that escaped the barrier of his gold-rimmed spectacles and even leaped the moment's occupation of finding seats, "perhaps you will not mind some seemingly pertinent questions in order that I may be certain of your identity."

I nodded silently.

"Then, if you please, your full name and position."

"Captain James B. Mathews in charge of the telegraph department at Army Headquarters. My commanding officer is Col. R. Harrison. He gave me orders to report here to you."

"And he recommends you highly for trustworthiness, sagacity and ability to keep a secret."

"Or Larone wouldn't have asked for you," drawled the astronomer.

"That is true. I must have your promise of absolute secrecy, Capt. Mathews. In other words, what you see and hear to-night are to be forgotten when you close my front door."

"Rather an unusual request—isn't it?" I parried.

"Perhaps it does seem so, but there is a reason. I suppose you realize that I am a very wealthy man?"

"It isn't hard to see."

"You see only the external advantages, but there are also disadvantages. The most annoying is an eternal publicity. Suppose the ham you ate for breakfast, the servant you tip in a café, your pet toothaches—all find their way into the headlines. If you were subjected to this, not for one day, but for year after year, you would understand my point of view. It is for this reason that I ask you to promise secrecy."

"Well, Mr. Larone, you have it." I laughed as I extended my hand. He grasped it warmly.

"And I have been told enough about you to know that you do not give your word lightly."

"Thank you."

"Now that that is settled, let's get down to the case in hand," drawled the scientist, still turning over magazine pages.

"Yes, of course. As you know, Capt. Mathews, nearly every man has a hobby. Mine is astronomy. In my private observatory I have a fair-sized telescope and a work room for experiments. Being an amateur scientist with a sprinkling of the inventor in my makeup, and plenty of money with which to have parts made, lenses or mirrors ground in any fashion that I may desire, I have spent much of my time experimenting with an invention of my own, an attempt to improve upon the principle of the telescope. Are you acquainted with either the reflector or refractor?"

"THE telegraph is my field, you know."

"Very briefly then, the refractor is the best instrument because it throws the incoming light beam directly to a focus, but on the other hand it uses such a long barrel that it becomes very unpractical for the large observatories. The reflector uses a much shorter barrel compared to the size of the mirror, but the mirror is now set in the center of the incoming ray, which therefore, must be turned back upon itself at an angle by a prism, before it reaches the eyepiece."

"I am afraid that I do not quite follow you," I admitted.

"Perhaps I can better explain by a sketch." Larone said, taking out his gold pencil and looking through a group of vest-pocket envelopes. Finally selecting one,

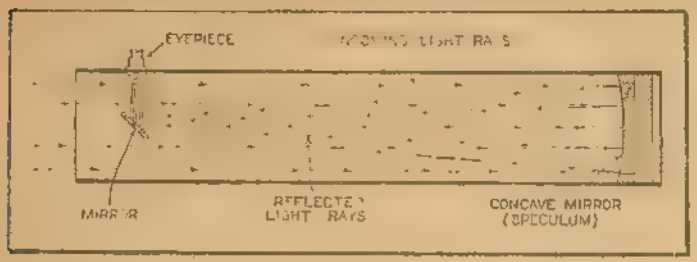
HERE is a most unusual interplanetarian story that certainly does not follow the general path of stories of that kind. The suspense contained in the story is excellent and a slight amount of romance, thrown in for good measure, does not at all detract from the story; rather, it makes you like it better.

But the thing that impresses us most, is the excellent explanation that the author has given for one of the most puzzling questions which every reader and scientist has been asking for years.

If, as we all admit, the supposed Martians have a civilization exceeding ours by hundreds of thousands, if not millions of years, why then, have they not communicated with us? Or why have they not sent space flyers to the earth? The author has given an excellent answer to this—plausible, as well as clever.

In the center of one of these groups on a great crystal chair, reclined a creature of about eight feet in height, whose shining silver scales reflected the mingled light with a dull gleaming radiance....Assured by a nod from Moo, I knew it was the Magu, and I looked at it curiously.

he drew the following on the back and handed it to me.



"That makes the reflector a little plainer," I said after studying it, "but how about your improvement?"

"THE improvement did not turn out to be much of an improvement," he laughed. "My idea was to use only the long barrel of a large refractor, and then basing my experiment on the theory that the longer the light ray, the greater the degree of magnification, I proceeded to bring the beam down to my screen by a combination of mirrors so curved and so arranged that there would be no aberrations or distortions of the image. Up to the present time, as I said, my 'improvement' has been a failure."

"The kind of a failure that it takes a Newton to figure out," observed Esteban.

"What do you mean?"

"He means that I have run against something that I—er—we cannot explain. Since the atmospheric conditions of the past two weeks have been extraordinarily favorable, I have been working every spare moment on my machine, but until last night I could obtain only a blurred impression of the object. Then, as I was trying to focus a clearer view of Jupiter upon the screen, a grating was accidentally knocked down by my sleeve and became wedged between my precious light ray and the observing disk, thus dispersing the beam into its spectral colors. (A grating, by the way, is a piece of plain glass upon which thousands of lines per inch have been ruled by a fine diamond. It is used in spectrum study, or in other words, in observation of the composition of the light ray.)

"I had reached over to pick up the grating and return it to its place on the shelf above, when I noticed that the two sodium lines which are normally black because of their partial absorption by the photosphere of the sun, were flashing yellow at regular intervals. I rubbed my eyes and looked again. There was no doubt about it—the sodium lines were flickering. I now went over all of my mirrors, looking for a possible cause, but all parts were apparently working pretty well—or at any rate I could find no trouble. Being too much of a scientist to remove that grating before I understood the cause of this new phenomenon, and too much of an inventor to take kindly to the delay, I was just sitting down to express myself in some colorful language, when I saw, or thought I saw"—with a glance at Esteban—"that is I *thought* I saw those lines flash once, then twice, then three times, and then four times. I got up and paced the floor. This was too much. I shut off the machine and phoned Dr. Esteban at the Mt. Wilson Observatory. At first he was amused, then skeptical, and then he agreed to come over, if I would leave the instrument untouched until his arrival.

"I think that he will admit himself, that he is as much puzzled as I have been. We changed the object to Sirius. That is, after he had examined the entire apparatus for the cause of this mystery. The strange fact was that with any object to be viewed, other than Jupiter, the flickerings stopped. When we changed back to the giant planet, they continued. However, they were more spasmodic now and never again flashed numbers."

"No it did not try the adding machine stunt again for me, so I am skeptical about Larone seeing it, for that flashing would be the sign of intelligence," Esteban said turning to me and putting aside the magazine, "for you can see for yourself Mathews, that a being on Jupiter, let us say, trying to signal the earth would, of course, use numbers, as we cannot conceive of a world where two and two does not make four, no matter what freaks inhabit said globe or what means of communication they may have. However, I will admit that just before the flickerings stopped—which they did shortly after this—I saw the following, quite plainly—dot, dot, dot—dash, dash, dash—dot, dot, dot."

"Why that is the call for help—the S O S."

"Yes, Mathews, but it might also be three written three times." Then shrugging his slumped shoulders, "It is undoubtedly a mere coincidence."

"But radio and light waves could never become mixed." I murmured more to myself than to anyone present.

"Granted!" Esteban said turning back to me quickly, "And we must also grant that Jupiter is of too rare a density to support any life other than fish-life and it is probably uncomfortably warm even for fish. Improbable as it is that it was a flash of three, it couldn't have been the S O S, for it is unlikely that the beings of Jupiter have studied English."

Larone, noticing that this remark had turned my face, neck and ears red to the very roots of my hair, said to Esteban:

"Now that you have discussed all the reasons why the flashes are not code, I suggest that we allow the gentleman, who can read it, to take a look at the machine."

After that there was nothing to do but follow the millionaire through velvety-carpeted rooms to a private elevator which took us to his tower room. There, indeed, I found the experimental laboratory that he had mentioned, for spread out before me were instruments of various types, tables full of complicated apparatus, and shelves filled with mirrors, achromatic lenses, prisms and optical instruments of all kinds.

AS Dr. Esteban, at Larone's suggestion, opened the dome and adjusted the telescope, the dapper little figure of the millionaire bent over a table upon which in a mass of wires and mirrors were lenses, dials and opaque globes. After a few directions had passed between the two, Esteban called out "ready" and immediately a piece of ground glass in front of me began to glow with muddled colors. I watched with intense interest as the blurry combination cleared and separated itself into the rainbow shades of the spectrum with the black lines now appearing. Suddenly I saw Larone straighten up and point to a pulsating pair of black lines that were flickering yellow. As my eyes followed his finger, they almost popped out of my head. It was code! I nodded excitedly as Larone handed me a pencil and an envelope to start on while he rummaged in a drawer for an old stenographic notebook. The message ran as follows:

"because the detective had evidently given my father up as quarry that had escaped. So having at last shaken him off, we took an assumed name and obtained a place as lighthouse keeper for the government. We were allotted a place on a lonely island far off the coast, where we remained during all, except the hardest months of the Alaskan winter. Then the welcome little sloop came to carry us back to Sitka. This lonely life, together with the clear, still air in which the stars shone down like tiny moons, turned my father's attention back again to his astronomy and his beloved Mars—the mystery planet.

"As long as he filled the idle hours with arguments, I agreed with his theories, and tended the light, but when he began to occupy his time [illegible] mysterious blue-

prints and more mysterious trips into the forest, I became worried. My fear that his mind was crumbling under his trouble and that he was slowly losing his reason increased when the following summer saw two large boatloads of metal parts landed at the island and hauled into the forest."

I laid down my pencil in disgust.

"Do you want me to continue to take this down?" I asked Larone who was reading it over my shoulder.

Esteban came up behind us.

"Even if it doesn't make sense, Mathews, it would be wise to . . ."

"It makes sense all right," Larone broke in. "It is a connected story of which I judge that we have missed about half." Then to me: "For Heaven's sake, Mathews, don't sit there doing nothing!"

I shrugged my shoulders and continued to write:

"because when the ship came to take us back to Sitka, he couldn't be found. I refused to go alone and sent them away. Then I set out to find him. Having located the same spot where he had previously thrown me off the trail, I took the other way up the valley. Coming to a cliff, I was overjoyed to find fresh footprints, and I hurried up the rocks like a mountain sheep. Then suddenly, not twenty feet from me, I saw my father. He had a spy-glass in his hands, which he held on that spot where the Sitka boat had long since faded over the horizon. My first impulse was to rush out and surprise him, but my second thought was that he had purposely sent me away because he thought that he was watching the last visible speck of the ship that carried me. Why? To take his own life? I decided to remain hidden and find out.

"Breathing a long sigh, he turned from the empty sea and slowly walked over the top of the cliff, passing close to my crouched body in his descent of a twisting trail that headed toward the north side. I followed cautiously, creeping through the bushes behind him. There I stopped in amazement. For just below me, built within a scaffolding of two by four, was a fifty-foot projectile standing point up. The little hollow in which it had been built hid it from view so well that one could have passed within a fifty foot radius without seeing it, unless he had come by the trail I had taken.

"My father, having now reached the base of the cliff, proceeded up to this creation of his (for I now realized the reason for the blue prints) and climbing a short ladder, vanished inside. In a moment he reappeared with a box of something in his hands. Then climbing down the ladder with a deftness that spoke of long practice, he took a path through the small ravine that cut the opposite wall. As he passed from sight, I jumped up and started down the path toward the machine, keeping my eyes upon this shining metal curiosity so completely that I slid down the last ten feet of the trail and landed in the sand at the bottom, sitting down. But almost immediately I was up and running toward the thing. The machine, I could now see, was not really bullet-shaped; the base was fashioned more like a carrot, as it consisted of heavy curving glass casements that merged into a steel funnel in the very center. The bottom of this funnel rested so close to the ground that I could not peer into it. I didn't try very hard, however, when the open door just above the ladder was such a temptation to explore the inside. As soon as my eyes became accustomed to the dim light that entered only through the curving glass floor, I saw that the whole interior was padded with a heavy plush that shaded into black shadows as I looked up. The whole floor however, was not composed of the curving glass plates either, as the sections of glass were braced between by steel ribs running toward the top of the projectile. In the center of the floor was a padded disk or circle upon which an upholstered pivot chair with huge arms and foot rest reclined beside a table-like instrument board. Close to the door was a pile of Hudson-Bay blankets and a fur robe which had been tossed inside carelessly and not even folded. I was just wondering what he meant to do with these in this strange contraption of his, when I heard my father's footsteps coming back through the ravine. With a panther-like dive, I jumped into the pile of blankets and, crouched down, pulled the fur robe over me in such a way as to leave one corner free for a peep hole. My father climbed in slowly, mopped his forehead with his handkerchief and after carefully closing the door behind him, stepped over my mess of blankets (while I held my breath) and climbed into the pivot chair. There he settled himself into a comfortable position and fingered some of the dials on the instrument board. A sudden jar shook the whole machine, my head snapped back to the curving glass floor upon which I was sprawled, and a dull roaring noise crashed out and died away into the buzzing nothing of unconsciousness.

"WHEN I opened my eyes again after a lapse of who knows how long, it was a moment before I could remember how I came to be lying on a pile of blankets. Then suddenly afraid that the noise might have meant some sort of danger to my father, I fairly bolted out of the fur robe. My father, who was still seated in the pivot chair, turned to me in blank amazement.

" 'Why—Davie!'

"Relieved that he was all right I could only say 'And why not?'

" 'But I thought that you were on the boat going to Sitka!'

" 'You ought to know me well enough by now to be less sure of that, Dad. So you thought I would go quietly away and leave you here alone—especially after the lecture on the money for getting my Ph.D. degree. Oh no. Not much. I had to see why you were so anxious to get rid of me.'

" 'But Davie your life was all ahead of you. I didn't mean to cut off your life like this.'

" 'Why the past tense? Are we dead already?"

" 'It is no joking matter, boy. My life doesn't matter . . .'

" 'What? You an authority on Mars—you the—'

" 'And a hunted man for a crime that I didn't commit. Besides my heart—the doctor said . . .'

" 'I don't care what he said. We'll make him eat those words. We are going back to the light now, and I will send out a radio call for another boat.'

" 'But Davie—you don't understand—'

"The curious fact that the sun was shining up through the curving glass windows of the base was just beginning to freeze my attention to them. I crept over to the next window and looked down. There below me, a weirdly yellow sun was shining in a black, star-strewn sky, while at a distance so great that it looked like a large orange, was the earth with its light and dark tracings close beside its tiny silver bubble of a moon.

" 'Now it's your turn to be surprised and my turn to say "And why not?" '

" 'But how—how did this machine get so far away?'

" 'Well Davie, during our first year on the island, by the merest accident I discovered what scientists have been dreaming of for years—namely the method of disintegrating an actinium compound (which you know is radioactive) in such a manner that the nucleus of the atom explodes, thus forming helium and hydrogen gases, and projecting these off with such velocities that tremendous reactionary forces are produced. In other words, as I hurl these gases through the funnel-

shaped opening into the void, I increase our speed as much as I wish, according to the amount of "fuel" I use, though of course I must be careful not to flatten out my own body by undue acceleration. In like manner, I can start easily. Thus I took plenty of time to get out of the atmosphere of the earth, so that the heat formed by friction would not burn us. Now I will give you a demonstration. Lean down on the glass window and watch, being careful to flatten out so that every part of your body is touching the floor.'

"So saying, I had no sooner straightened out against the floor than I felt as if some force had crushed me to the glass. At the same time I saw a luminous bluish-white blaze shoot from the funnel and trail behind us like the magnificent tail of a huge comet. I turned back to my father with quickened breath:

" 'Whew! I'll say she goes!'

" 'Once I had the motive power, the rest was easy.'

" 'And so you set out to explore the Universe. Now let's see just what was it that doctor said about your heart? It seems to me that it had something to do with resting—oh yes—and by no means should you indulge in any excitement . . .'

"My father threw back his head and laughed.

" 'And didn't you say that we would make him eat it? How I would have missed you, boy, with your smile and priceless ability to take every calamity as a joke!'

" 'Well, I would certainly have missed out if you had succeeded in leaving me behind in this trip of exploration. It isn't a calamity—it's an opportunity.'

"Then as an afterthought—'But say, there are lots of puzzling angles to this contraption that I would like to have explained.'

" 'This isn't a contraption, young man. It carries every necessity and is well built—even if I do admit the same with a pat on the back. What is puzzling you?'

" 'How do you keep it warm?'

" 'By the rays of the sun. That is the reason for the curving windows at the base. Glass has a tremendous resisting power for pressure when that pressure is evenly divided and steady. Also the rays of the sun, which are always on the base (for it is eternal day on the base and eternal night on the rest of the ship as long as we are going away from the sun) only give off heat when they strike an object. For that reason they do not heat interstellar space but they pass through it and heat the surface of any object which absorbs them. In such a manner our little ship is heated—by the direct and steady rays of the sun.'

" 'How about the air that we are breathing?'

" 'That is easy. In the peak of the ship I have a little wrinkle for absorbing the carbon-dioxide by means of sodium hydroxide. On the other hand, for renewing the oxygen content, I heat some potassium chlorate in a tube. It is heated by means of converging mirrors. Of course you know that by concentrating the sunlight you can obtain a very high temperature. For reserve, however, I have stored a small tank of oxygen.'

" 'But suppose that the door opened and our air vanished into the space outside?'

" 'That is impossible. The pressure upon the door from the inside out is almost fifteen pounds per square inch and since the door opens inward, you can figure out for yourself that unless we land in enough air pressure to live, we would not be able to open the door.'

" 'But suppose that the air pressure itself is all right but the content of the air contains poisonous gases?'

" 'I have provided for that also. By chambers of chemicals that are particularly sensitive to the gases we are liable to encounter, arranged on the exterior walls, I have their reactions so handled that indication of poisonous qualities in the atmosphere would immediately color red this bluish thermometer-like indicator; pointing to an instrument fastened on the wall. However, you can learn more by seeing the ship than by sitting here and talking about it. Suppose we go on a tour of inspection?'

"I AGREED eagerly.

" 'This is only half of the ship you know,' he smiled. 'The rest is upstairs.'

"I glanced up. With the help of the long rays of sunlight that streamed upward, I saw that the projectile was divided about in half, judging by the distance of the ceiling above us. In one corner of it was a small circular opening.

" 'We can easily jump up there now, but for our convenience in getting back here when the nose is close to another planet and plunging down, I have built these little loops into the wall,' he said, pointing out a series of rope handles, ideal for grasping both as a hand- and foot-hold.

" 'Now don't jump hard Davie. Remember that you weigh about as much as the proverbial sparrow. Just give yourself a push and float up to it.'

"When we were in the nozzle of the ship, my father pressed a button and a great circular panel slipped back, disclosing a huge glass dome through which we could stare out at the heavens. Out-shining all of the other stars, was the planet that gleamed straight ahead of us like a red moon. I eyed the much discussed 'canals' and laughed:

" 'Why didn't I guess that it was Mars?'

"My father looked at me in indignant astonishment.

" 'Oh, I didn't mean that I couldn't recognize it. I meant that I should have realized that Mars would be our destination as soon as I realized that we were in space—bound somewhere.'

" 'Perhaps I am crazy, Davie, but when I obtained the motive power—well, the desire to see for myself became an obsession.'

" 'But what makes it so large? We must be going some.'

" 'Slightly over a million miles an hour.'

" 'My Lord.'

" 'Not so fast, when you realize that we have practically no weight to drive and no friction to hinder us. I built this ship for speed. It is very light; nevertheless it is strong enough to stand a fairly hard blow. We are about half way now.'

" 'I must have had some sleep.'

" 'You probably were unconscious for some time before you sank into natural slumber. I had a seven hour nap myself. You see I was prepared to start with as much of a rush as the ship would stand, and I had no idea about you. We can thank our guardian angel that the blow on your head was not more serious.'

" 'My football days must have thickened my skull somewhat. But what makes you think that we won't find a barren planet? I know how you are going to answer. Like Lowell, you argue that the swamps are used by means of the canals to irrigate the desert lands. You will say that it takes great engineering skill to build such canals, thousands of miles in length.'

" 'Well?'

" 'But how do you *know* that they are canals? They must be twenty miles wide to be seen from earth.'

" 'The vegetation grown upon either side makes up the width. This also accounts for the apparent fading of the canals at certain seasons.'

" 'All Lowell's arguments, Dad.'

"'True, but here is one of my own. These canals run through deserts and all such areas have sand storms and dusty air.'

"I nodded.

"'Then why should the atmosphere of our neighbor planet be an exception to our own. Dust undoubtedly masks much of the surface in the desert areas, and in some seasons this dust fog must be worse than in others. Thus for natural reasons the canals appear to fade when viewed from the earth.'

"'That sounds reasonable enough, but you know that the bigger the telescope, the hazier the canals.'

"'What can you expect from an instrument that enlarges our own atmospheric layers of dust particles as well as the object it is focused upon—an instrument invented in 1610? I notice that the canals are still to be seen—now that we are beyond the air strata of earth.'

"I nodded thoughtfully.

"'Besides, Davie, I once had an experience that almost convinced me. It happened when I was in the Andes and had an unusually fine night. I was studying Mars when I saw a minutely tiny dot near Typhon. Within an hour it was at Apis and about an hour and a half later it was lost in the dark space of Pseboas Lucus. During that time, I turned to every star and studied its markings, thinking that it was a minute gnat or dust speck on my own telescope. I even begged one of the other astronomers to come, but, for my trouble, I became the joke of the place for a week.'

"'You think it was an aircraft of some kind bound for the city of Pseboas Lucus?'

"'I am not prepared to say. Only I know that I saw it on Mars and not on any other object. Of course, it was larger than our understanding of aircraft allows, just as it was too speedy for an animal as far as we know. However, as I say—I only know that I saw it.'

"'Suppose that these flying affairs decide to serve us for dinner?'

"'I believe that we will be too rare a specimen of animal and too interesting for a meal. We may land in a museum, however.'

"'You will insist upon intelligence. Then answer this: if these Martians are so intelligent, why have they never tried to get in touch with us? If they are not blind, and of course they may be, then they must have seen some sign of life on our planet.'

"'That is one of the many things I want to find out, Davie.'

"FOR some time we sat there in silence, and then he opened a side compartment, taking out a telescope and handing a small one to me. I looked through this instrument in surprise at the growing red disk of the mystery planet. Then I sat back and watched my father as he fingered the instrument with loving touches, the red glow of the planet upon his wrinkled face. Finally I decided to interrupt his meditations.

"'What about our tour of inspection, Dad?'

"'True. I had forgotten all about it. He pointed to one of the compartments built in the wall here. The space was only half what it was below. The rest I found was utilized for storage.

"'This is the oxygen tank. Conserve it if possible.'

"Then opening other compartments, he showed me in turn—water, tools, ammunition, a medicine kit and various foods—mainly those of a concentrated nature, such as hardtack, pemmican and dried moose meat. Dried fruits had also been stored away and several desicated varieties of vegetables. Looking these over made me realize that it had been some time since our last meal, and my suggestion of a meal was readily agreed to by my father.

"'I do believe, boy, when we meet the Martians, your first translated speech will be "When do we eat"?'

"I laughed as he hustled out the food and before long we had put away as nice a little meal as one could expect to get some thirty million miles from old mother earth.

"After breakfast or dinner, whichever you wish to call it, my father demonstrated to me how the course of the ship could be guided from either of the four sides by ejecting gases from the sides or slowed down by shooting the ammunition from the nose. Of course, such a speed as we had obtained could not be checked immediately, it would have to come slowly by steady firing alternated with non-firing intervals for cooling the bow or forward end. I also learned that another panel existed on the side of the driving apartment, which opened a huge glass window around that room.

"My father now put me in charge of speeding the ship for a few hours, while he went up to study the unfolding features of Mars. I amused myself with speeding the ship for some time and watching occasional meteors shoot by when slowly my headache came back upon me, and throwing myself down upon the fur robe, I nursed my injured scalp until sleep finally overcame the pain.

"I was awakened by my father's arm shaking me. Opening my eyes sleepily, I noted with a start that the glass panel which was on the side of the driving apartment was under me, and as I sat up, I caught a flashing glimpse of a huge white city of glistening towers, far in the distance, spread out in the shape of a spider web, from the intersection of two silvery water ways. A thousand craft dotted the waters and another thousand flew and circled among the air canyons between the towering buildings.

"'Davie, don't stop to look. I have been watching it unfold since you first went to sleep. I know it is fascinating, but we are going by! I cannot stop the ship and I cannot send it down. If we can send it down a bit we will circle the planet until we can get the braking machinery under control, otherwise we will shoot helplessly on through space at a terrific speed. You must reach that lever and pull it to throw us down a little—you must, for my strength is not equal to it, Davie, I can't!'

"My father's agonized voice acted on me like a whip and I leaped up to the lever to which he pointed and pulled. It was certainly stuck, for nothing happened.

"'For God's sake, pull! Force it to give! It is our last chance!'

"Jerking my legs up, I used them as a brace and with one tremendous effort, heaved against the lever. With a grinding screech I felt it give way; felt my body hurled across the cell with a terrible force, until a sickening blow blotted everything into darkness.

"How long I remained in this state of unconsciousness I do not know but when I next wearily opened my eyes, everything in the cell had a bloodshot tinge and a thousand molten iron hammers seemed to be beating upon my temples. I started to press my hand against my forehead. When I raised my arm I was surprised to note that my fingers still clutched the lever. It had broken off! I looked up. Yes—there was the broken end still in the turning hole on the wall. I crept over to the curving base windows and looked back, for its lightness had brought another realization—the realization that we were again far off in space. I was right. There, far behind us, was the red disk of Mars. I turned to the form of my father lying face down on the floor:

"'Cheer up, Dad. We have said goodbye to Mars, but you know we have the edge on Alexander. We have plenty of more worlds to conquer!'

"He did not move.

"'Dad!'

"I forgot about my own headache, as with shaking hands I managed to turn him over. A long red gash ran down his forehead. The sight of it sent a chill through me as I pressed my ear against his coat. The tired heart was beating very faintly. I jumped up to the medicine closet looking for some heart stimulant. A small bit of digitalis was at last uncovered but such a pitifully small amount. Why hadn't he taken more? This would last for perhaps a week—and then? But by that time perhaps . . . we both . . . I gripped the little bottle and hurried back.

"After binding his wound and futilely attempting to bring him out of his unconscious state, I carried him to the curving glass windows of the base where I made him a warm bed and then sat down by his side to watch and wonder. Was it the broken lever—or the excitement? He must have been up all the time I was sleeping—he said that he had been. And all of that time he must have been watching those canals and cities unfold—he must have grown more excited all the time, until the climax came—and the broken lever. But—the gash on his head—it was a deep heavy skull bruise . . . and in my hand—the broken lever. I clutched my head between my hands and rocked to and fro, then I stared from red Mars behind to a brilliant new star that loomed ahead—with red-rimmed unseeing eyes.

"AFTER that I lost all track of time. I ate and drank and slept in a sort of daze, spending my time in nursing my father and in listening to the wild ravings of his delirium, while the new star grew to a dazzling brilliance. Once in a while the sudden appearance of a tiny globe flashing by, served to break the monotony. Though I speak of them as being small, some were formidable compared to our little ship, while a crash with any of them would have meant disaster for us. I realize that I was threading my way through the asteroids, those many tiny planets circling our sun between Mars and Jupiter. I say I was threading my way, for I was supposed to be guiding the ship. My father would have expected me to assume complete control. But I had to allow it to wander as freely as any body could through uncharted space.

"Then the day came when the new star which had grown to the size of a tremendous moon surrounded by twinkling lights, was beginning to swing toward the nose of my padded bullet—or perhaps my padded death cell? It was Jupiter. Sitting there by the glass window, I tried to rouse myself to life; tried to recall some of the details concerning Jupiter, that I had heard argued among my father's friends. I tried to look upon this tremendous spectacle from a viewpoint more worthy of a son of my father. What was the cause of the great Red Spot which astronomers first saw in 1877 and which always returned with variations in tint? Was it a new continent on that ever-changing surface of the giant planet? What are the great bands that swim with such velocity, turning, much as the sun rotates, more rapidly at the equator?

"It did not take long to convince me that my shell was now hurling through space right at this giant world. As it loomed over the horizon, the Great Red Spot gleamed like a huge garnet set just to one side of the color banded planet's center. As I watched this mark, a horrible thought flashed through my mind. What if the surface of Jupiter should be molten and the Red Spot a vast volcano—three times the dimensions of our little earth? I had once heard some arguments on the subject, one of which stood out clearly in my mind—the reported observations of Cammille Flammarion, the French astronomer, in which he said he had found the luminosity of Jupiter's moons diminished in proportion to their distance away. I was trying to recall how their temperature seemed to vary when my attention was recalled to the apparent disturbance of gases or clouds which banded the planet. I rushed to the observatory and grabbed a telescope. What I saw brought my heart into my throat. A glistening star had shot through the moving mists and had burst in golden rain. Then, from the glowing smokiness of the Red Spot, a belch of gleaming syrup-like flame shot into the air. Lava! And headlong I was plunging down!

"After that I moved. I struggled frantically awhile with the braking machinery. When I finally got it to work, it was too late. My only chance was to pass the monster. Now I struggled with the charge on the opposite side of the ship—hoping desperately that the lever would not break as it did at Mars. This time luck was with me, however, and I whooped out loud to see the edge of the great planet come into sight. On two scores now, I realized that the danger of hitting this molten mass was passing—first the lateral charge had turned my direction of travel—and secondly Jupiter was itself traveling away from my prow in its long journey around the sun.

"I had scarcely breathed a sigh of relief as I watched the rainbow fumes of the giant world surge and part, when a fresh alarm seized me. I was swinging away from Jupiter altogether too rapidly, to be quite normal.

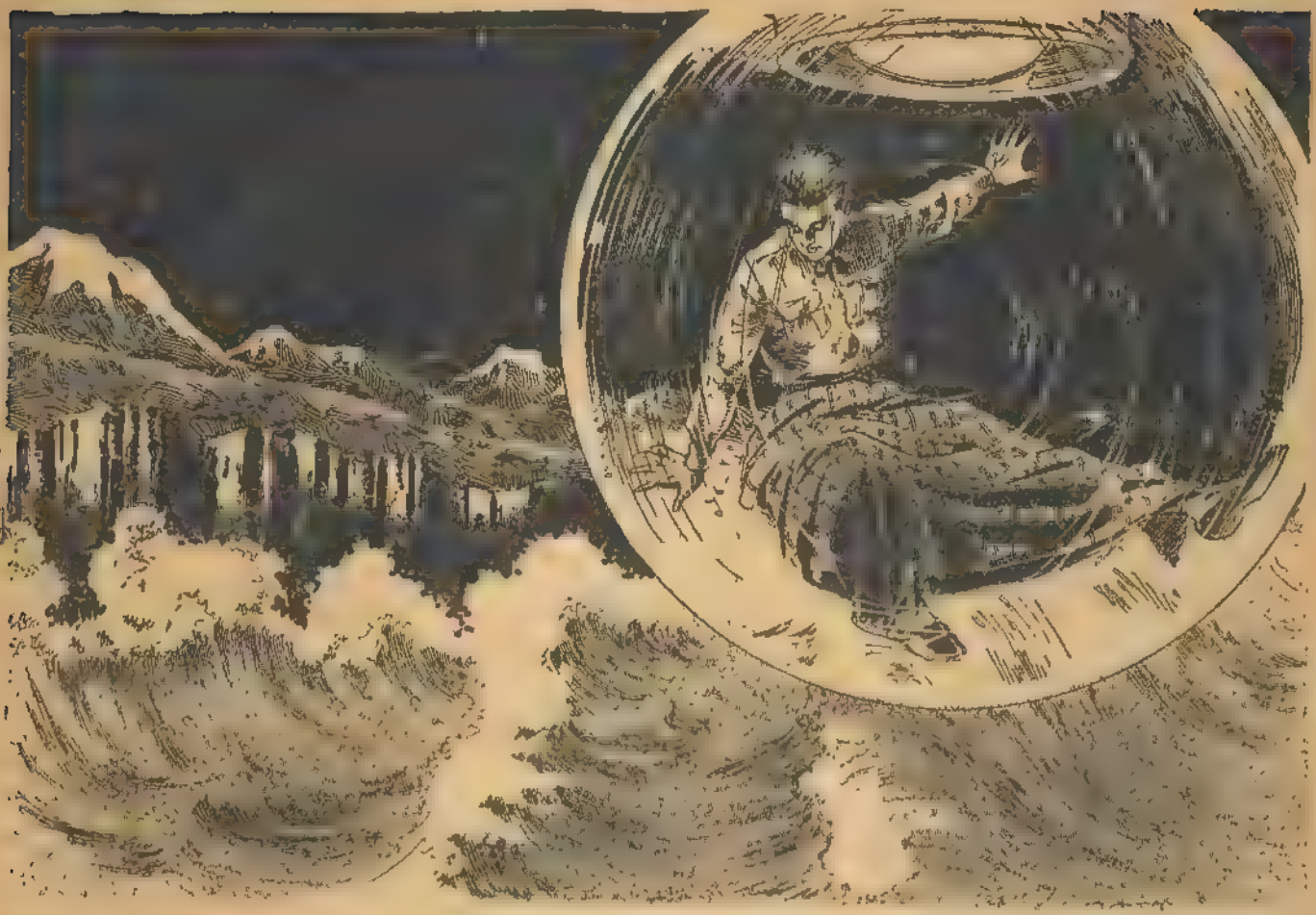
"'Something is pulling us away from Jupiter.' I shouted. Startled at the sound of my own words, I laughed aloud and the laugh echoed hollowly through the shell as if a sardonic voice had mocked me.

"Feeling an imperative need for action, I knelt by the window and pressed my cheek against the glass. The sight that met my eyes made me gasp. Like a huge rising moon, a great silver curve was thrusting itself between the nose of the shell and the black, star-sprinkled abysses of space. One of Jupiter's moons!

"I dashed to the observation window and again seized a telescope. Through this the light and dark splotches seemed to resolve themselves into enormous mountain chains of the steep, sharp variety of those on the moon, for instance, and the wide, dark places seemed to be small seas—or rather large lakes. The valleys between the mountain peaks were dark with shadow. I put the telescope away reluctantly, and closed the dome, for I had no time for speculation now. Somehow, I must check the plunging speed which the shell had attained.

"I decided that the best method was to either circle the globe until I could check the speed, or if possible to lower myself at an angle. Hurriedly, I placed my father in a position where he would receive the least possible pressure from the braking force. Since he had been very low for some time and I had despaired of his life, the fact that he was apparently resting quietly, cheered me.

"As I turned the pivot chair and seated myself, I did some rapid mental calculations. I was gaining speed all the time, with the force of Jupiter pulling me, but now that the giant planet was swinging around behind me, it was acting to check my fall upon this moon. With the help of Jupiter, perhaps, I would be able to check my speed enough to go straight down upon the moon. I applied the gas from the nozzle then and watched the indicator. I was slowing up! But when the blue-white flame began streaming past my windows, I quickly turned it off. I didn't want to burn up! However, realizing that the absolute zero of interstellar space would soon cool off the metal, I continued to apply the brakes, metaphorically speaking, alternating them on and off. Such tremendous motive power did my father's discovery have, that with the help of Jupiter I



Through the thick glass that surrounded me, as if I had been a mite in a clear glass marble, I could see a coastline of towering granite cliffs, perhaps a mile in height, extending to misty distance.

was able to come down in seven hours when it should have been but a matter of minutes. I realized, however, that if I had been trying to land on Jupiter and had had to fight its tremendous gravity instead of having it as a help, I would have been dashed to pieces long ago.

"Slipping from the chair over to the window, in order to better determine my course, I saw needle-like peaks rising toward me like giant ragged teeth whose snowy cliffs descended to a dark, cavernous valley below. It was as if one were looking at a wild, fantastic world upside-down. Snow! That meant atmosphere! Perhaps in that deep gorge there might be enough for me to breathe.

"Hurrying back to the chair, I applied the brakes again and turned the nose into the canyon, watching from my seat at the instrument board, for those steep, snow-chinked walls to come into sight. Finally they came—fairly plunging past us. I shoved on the blue-white flame and when I next caught sight of them through its mists, I was falling at about thirty miles per hour. After applying the brake power again, I hurried over to the panel and looked down. Strange, silvery trees had resolved themselves from the tangled mass in the gorge, and were reaching toward me with long grey fingers, as I dropped into the shadow of the canyon. Above me, the sheer sides of the cliffs rose for several miles. I closed the panel quickly and again shoved in the braking lever. I could feel the heavy, welcome force of it for several moments and then suddenly it gave way in a high-pitched squeal. Was the ship out of fuel? I wondered as I braced myself for the crash. It came, at last, with a long, sullen 'swish.' Then dark, soft loam plowed over the curving base glass windows, leaving me in utter blackness with the knowledge that I was entombed. I groped around for the matches in the front compartment, climbing back up again into the instrument room with a few of the matches in my teeth.

"MY first thought was for my father, who might have gotten a serious jolt when the ship buried itself. I remembered with a pang that I had used the last of the digitalis hours ago, and at the same time thanked my lucky stars that he slept so peacefully during these untold ages that I struggled to get away from Jupiter. It seemed like aeons of time to me. I struck a match on my shoe and held its flickering light where it would fall upon the face of my father. By its yellow glow he seemed to be sleeping in utter peace—his grey hair brushed back from his forehead and a look of inscrutable wisdom and contentment in his thin, intellectual features. But something about that look frightened me. I reached a trembling hand over and touched his cheek. It was cold. Quickly I put my head down and listened for his heart. The whole world seemed to have the unutterable silence of the grave. Then rising somewhat unsteadily, I hunted for the mirror that he had put in the equipment as a substitute for matches, if such a necessity should arise. Though I instinctively knew that it was no use, I brought it back with lagging steps and held it over his nose and mouth. But the flickering, yellow flame of the match showed not a particle of moisture on its shining surface.

"I covered up that peaceful face then, and blowing out the match, sat there in the darkness beside the body. About this period when my grief had full reign, I choose to be silent, as it has nothing to do with the story I am telling. Nevertheless, it would be well

to mention that it was some time before I attempted to dig my way out into the new world upon which I had landed.

"Before I started to dig out, however, I tried to bring the ship out under its own power, but evidently my first guess was right, and the fuel was gone, for not a sound greeted any of my efforts. Even the side levers were dead, so by the light of matches, I began to unload the front chamber and carry all the provisions up into the instrument chamber. Then buckling on a loaded revolver, and taking up a shovel, I proceeded to put it to the use for which it had been brought, although I was not digging through the red soil of Mars. The atmosphere indicator showed no red, so it was with a feeling of hope that I opened the door and started to pile the damp, black dirt that came tumbling in, down through the small doorway into the base of the machine.

"I had half filled the tip of the shell when my tunnel caved in on the upper end, but after another half hour of work, I reached the surface. This was not such hard work either, for the lesser gravity of this world made me a regular Hercules for strength. The soil was not over ten feet above the base of the ship, so after carefully widening the entrance and packing it, as a precaution against another cave-in, I stood up and looked around. My ears rang and I felt a little dizzy but these were the only effects that I noticed from the thin air. My thoughts, however, did not long remain on the atmosphere. I was attracted by the strange, wild scenery which I saw all about me.

"Perhaps five miles overhead, towered the snowy peaks with their dazzling sunlit summits. About half way down their sheer sides, the yellow glow of the sun stopped and purple shadow mingled with the weird reddish light that poured down from Jupiter. About my feet, even this light was fitful, as the giant arc rising over the saw-toothed range across the valley, and filling as it did, about half of my visible heavens, was partly obscured by the silvery arms of a fungus-tree that towered perhaps three hundred feet over my head. Other tremendous mushroom-like growths soared skywards on every side, forming a jungle which grew denser as one descended towards the valley bottom. From my slightly elevated slope overlooking the silvery forest, I knew that under its strange roof reigned a perpetual twilight. And as this knowledge came to me I felt a sense of desolating loneliness and helplessness as if I were a speck—a fly or ant, suddenly set free in an unknown giant world.

"To keep these thoughts away, I set about to bury my father. A Hudson Bay blanket made a serviceable shroud. First I dug a deep grave in the soft soil and then I brought up the body from the ship and lowered it—saying what I could remember of the burial service and adding some words of my own. At last, when I put back the moist, rich soil, I stopped often to glance up at Jupiter, as it peered down through the silvery branches of the giant fungus growths, like a witness of my movements.

"I was just tapping down the last bit of soil with the palms of my hands, when a heavy, sodden 'plop' brought me to my feet. It was not a moment too soon, for a long, dragon-like animal, with perhaps a hundred feet, was sliding down the trunk of the nearest growth. Its single shutter-lidded eye in the center of its forehead, blinked at me in stupid wonder.

"As it started to come toward me, I backed away, finally turning and running down the tunnel. The trouble came when I tried to close the door on all of the silt which had poured in after me. I made an attempt to brush it back into the tunnel when I caught a glimpse of my enlarged centipede starting down the entrance to my den. I sprang down into the dirt of the nozzle and waited. Then, as the long slithery head felt its way into the darkness, I raised my revolver and fired. The creature stopped a moment in astonishment while I fired again. This time his head thrashed up and down against the walls of the cell with the hiss of a thousand snakes. Backing into the farthest corner, I fired a third time. The flare of that report betrayed me to the enraged animal for the sinuous neck stopped its writhing and the red glow of its eye was turned up to me. With a shrieking, high-pitched hiss, the oozy head shot toward me, while I backed desperately away against the wall. Firing my last shots at the bloody eye that came steadily toward me, I crouched in the corner and threw my empty gun at the thing. Then the bloody glow of the eye faded out just as I felt a slippery tentacle wrap itself around my waist. I threw my arm up to protect my face, when something struck me above the elbow with the sting of a branding iron. Then suddenly, in spite of the pain in my arm, I realized that the cold, wet coil had slipped from my waist and taking down my arm, I peered toward the door. There I saw the creature shuddering convulsively.

"CAUTIOUSLY I crept over to the door and looked at it. Still shivering spasmodically, it coiled and uncoiled like a huge snake, but as the last two bullets had almost torn the top of its head off; it could not be alive. I jumped up through the door and hurried over toward the medicine kit which I had thrown carelessly into a corner, upon unloading it from the nozzle. My arm was in a bad way. Three huge red holes showed where the teeth had entered, and the whole arm was swelling rapidly.

"I was just in the act of twisting my sleeve around my upper arm to keep the poison from getting to my body, when a weird blue glow, lighting the familiar dusk of the padded room, made me whirl around. Framed in the doorway, stood a beetle-like creature about a foot high. Grotesquely it faced me on two thin hind legs. I noted quickly that unlike our insects which have six legs, this creature had only four—the upper pair of which it appeared to use as arms. The six toes on these appendages were long and delicate. The head, which was rather large in proportion to the tiny body, had eyes set on the end of protuberances which could be moved backwards and forwards at will, and was surmounted by exceedingly delicate, feather-like antennae which waved slightly to and fro, emitting that peculiar silver-blue luminosity that first attracted my attention.

"I stood holding my wounded arm and regarded the newcomer sullenly. Another pest! At this rate, Dad should have brought an arsenal! Not moving my body any more than I could help, I groped behind me for my last loaded revolver. When at last my fingers had closed over it, I brought my arm around with a flash intending to kill this new lightning bug and examine it afterwards. But before I could fire, before I could even take aim, a green ray of light darted from one of the tiny hands and a thousand knots rushed up my offending arm, while my revolver clattered against my boot. I realized with grudging admiration that no matter what this creature might look like, I was dealing with a high order of intelligence. In the battle of wits and weapons I had been quickly out-maneuvred, though my life was spared. I admitted this to myself cheerfully, but I also had to admit that the poison from the overgrown thousand legger was numbing my whole arm and shoulder. Even if I should fight off this thing, I probably wouldn't last long unless I could get

some aid for my wound, so I decided to take a chance on being eaten by its fellow-creatures.

"Kicking my revolver away, I sat down and nursed my poisoned arm. The beetle-thing understood my move thoroughly, for he walked up to the scorned revolver and examined it. In the mean time, the blue glow had brightened and looking back to the door, I was not surprised to see more of the luminescent beings standing in there, while others crowded in from the tunnel behind.

"The first chap, who seemed to be the leader, now that he had turned the revolver over and examined the other side, turned to his fellows. Immediately a few went over and carried the offending weapon outside. Then, turning his tall eyes upon me, he walked over fearlessly and held up three fingers. Puzzled as to what this could mean, I stared at him stupidly for a moment. Clearly he was trying to talk to me. With a burst of inspiration, I nodded vigorously and showed him the three inflamed holes in my arm. He understood, for he glanced around almost mechanically for the dead snake-beast and hurried up to me. At the same time the other creatures stopped their aimless sight-seeing trips around my cell and scattered here and there—some to me and others out of the door; while still others pulled and tugged at my own fur robe, and then motioned for me to lie down upon it. By the time that I had obeyed this request, those who had dashed out of the door returned with a bowl of something and a strange orchid-like flower which was pressed against my nostrils. I became aware of a deliciously sweet odor that made the padded walls, the slimy snake-beast and the glowing beetle creatures waver uncertainly like images reflected in water. Realizing that I was being drugged, I tried to sit up and fight it off, but it was too late and I sank into a dark pit of enveloping sweetness.

"It might have been an hour later or perhaps many hours later, when the whirling web of dreams which clouded my mind, cleared up and I slowly opened my eyes. I was lying on an improvised bed made up of my own blankets, on the floor of some type of vehicle built like a crystal globe or cell. Through the thick glass that surrounded me, as if I had been a mite in a clear glass marble, I could see a coastline of towering granite cliffs, perhaps a mile in height, extending to misty distance. Behind them peered snowy pinnacles, while before them curled and dashed moving emerald mountains of water, whose foam glittered in the red glow of Jupiter, that huge nocturnal sun. Above those giant crests, my little globe floated easily as if it had been indeed but a bubble from their spray.

"I say globe, for it seemed to me that it was probably of this shape, though a metal ceiling kept the upper part hidden. Whether the upper half contained the motivating machinery or not, I had to admit that the arrangement was an ideal one for the purpose of observation. Through my rounded glass floor and walls I had an unobstructed view in every direction, from the misty horizon, from whence these purple-green mountains of water, 200 to 250 feet in height, rolled in to the granite cliffs where they dashed at last in that geyser of spray that sparkled like a thousand rubies.

"I knew that the size of these waves was occasioned by the tremendous tidal pull of Jupiter, which would cause oceans of the extent of those on earth to inundate the entire world. Therefore, this sea, I reasoned, must be relatively small.

"As I was turning this over in my mind, I suddenly noticed that the course of my vehicle had been changed and that it was heading straight for the cliffs. But instead of being dashed to pieces in a rush of spray, a metal door, so nearly the shade of the cliff that I had not noticed it, slowly swung back and we passed inside. Just as silently as it had opened, it then closed behind me, shutting off that fairy world of red moonlight and glinting foam, and leaving me in utter darkness. I could not tell if the globe was still moving, or if it had come to rest—such blackness engulfed me. As my eyes became accustomed to the darkness, however, a yellow gleam of light, coming to me as it were through a long and cavernous tunnel, twinkled like a tiny star in immeasurable distance. My vehicle, I soon discovered, was approaching this light very rapidly for it was not long before the tiny glint had grown to a brilliant glow, that lit the sides of my tunnel enough for me to note, that these seemed to be made of enormous blocks of rock put together, with what appeared to be unusual skill.

"I realized now for the first time that I was probably being carried to the home of these beetle creatures, and as it was apparently underground, it was undoubtedly kept warm during that time, when, if left to my own devices, I should undoubtedly have frozen to death. I refer to the short but terrible winter, when this little world dips into the icy shadow of Jupiter. A feeling of gratitude welled up in me and I waited with eagerness for what might follow. I did not have long to wait. As I shot out of the end of the tunnel with a long spiral whirl, I saw that my shell appeared to linger a moment above a vast machine plant from which as a center, lighted corridors extended in every direction. Toward one of these my machine swooped; passing hundreds of similar vehicles, bound in various directions, some empty and some occupied, but all having the silvery metal sheet through the center and looking very much like soap bubbles. I wondered if these machines were operated by remote control from the plant I had just seen—a speculation I later found to be the case, this problem having been worked out to such a state of efficiency that traffic accidents were practically unknown.

"THESE speculations were soon crowded out of my mind, however, by the beauty of the measureless cavern or corridor down which I found myself speeding. Traffic passed along in levels, the lowest line of crystal globes being the slowest moving. Above this level passed a faster line, while from the third line of travel where I had been placed, I could easily look down upon the others, though traveling at a still more rapid speed. The light of the corridor was furnished by what appeared to be countless self-luminous jewels, composed for the most part of reds, from wine to orange, set in a marble pavement like a never-ending mosaic. The walls and pillars, on the other hand, were formed of a crystalline substance that caught the light from below and reflected it in a million diamond points.

"I leaned against my glass wall and looked up for a sight of the roof. Only walls and pillars extending upward into shadow, seemed to catch the light feebly before fading to the darkness, through which I seemed to glimpse another and still faster line of globes.

"Suddenly a change in the movement of my car brought me ludicrously down in a sitting posture on the floor. My machine had been snatched from the line of travel and turned down an intersecting corridor, as I discovered, but what I now saw looming ahead brought me to my feet, just as my machine swept up in a long spiral over a glittering marble city, glowing with the blue bodies of its swarming inhabitants, and the patterned wine-reds and orange of their mosaically lighted streets.

"The buildings were as tall as those of a great modern city, but the individual stories were so small, and the thoroughfares so intersected by innumerable upper streets and traffic laden bridges, that I saw at a glance it was a place I would never be able to explore. Truly I had found Gulliver's 'Liliput,' but its secret ways were closed to the giant. Therefore it was with a feeling of loneliness that I saw my vehicle swoop down toward a huge open square where hundreds of globes were drawn up in orderly rows, and beyond them, teeming swarms of these gleaming creatures waited with upturned faces, the combined glow of their bodies lighting the scene with their weird, bluish light.

"With another slight spiral my globe came to rest in the center of the square, stopping so easily that I did not realize that it had landed, until the metal ceiling opened back and the cell rolled slightly to one side, so that I could step out. This I immediately did, and shifting the fur robe into a smaller bundle under my arm, I took a few steps over the rock floor toward my captors. It was a strange sight—this bluish audience, so phosphorescent in the dim light, with their shining city in the background.

"I had not taken four steps before two of the little creatures separated themselves from the crowd and made a low bow to me, holding both arms stiffly in front of them. I made the same kind of bow. Then the first one held up three fingers and pointed to me. I had forgotten all about the wound! I rolled my sleeve back and looked at my arm. The faintest scars were all that remained! Astonished, I looked at my audience now with added respect. What medical skill! On more than one score now, I owed my life to these beings.

"Making a sign that he did not mean my wound, he again held up three fingers and pointed to me. Then closing his hand, he held up five fingers of one hand and three of the other and pointed to himself. This interesting Chinese-puzzle conversation he ended with another bow. I understood the bow anyhow, and so I returned it.

"Apparently satisfied that I had understood him, he turned to the crowd, his antennae glowing with a bluish green fire. Was he talking to them? It was a speculation that made me dizzy, and yet what had I expected—a man talking English? I gave a short, sarcastic laugh. At that sound which echoed so loudly through the silence, every creature gave a nervous start. The speaker, if such I might call him, turned and looked at me. I hastily bowed. He returned it and continued his silent remarks. How hopeless, I thought bitterly, to try to communicate with these beings. One might just as easily talk to a butterfly!

"As these melancholy thoughts passed through my mind, I noticed that a lane had been gradually widening through the gleaming mass of creatures before me, and as it silently opened, my little friend of the many bows, turned and, indicating for me to follow, set out through the lane. It was a creepy feeling, walking through this path of odd staring little faces—this path that closed again behind me in a lucent, moving mass. Just such a feeling had gripped me once before when stalking through a silent, snowy forest of the north, unarmed, I could feel the warm breath of my half-tame timber wolf on my legs as he followed me.

"For perhaps ten minutes of this I followed my guide, my boots sinking in the heavy moss beneath my feet and my eyes roving from the strange faces on all sides to the great crystalline wall toward which we were heading. Upon reaching it at last, another surprise awaited me, for the solid wall began to part—first in an imperceptible crack, and later swinging back like a huge gate, disclosing a tremendous hall beyond, in which the combined sheen of many bodies pulsated like the turquoise transplendency of a nebulous aurora. Needless to say, it needed no other light and above galleries upon galleries of these lucent fireflies, great shadows closed down, for what might have been walls or a ceiling.

"As I followed my guide again through restless, peering crowds, he led me to a small gallery which might correspond to one of our boxes—where he indicated that I was to sit. I stepped up and spread my fur robe on the floor. I indicated for my guide to come up and sit beside me, but he shook his head, which action looked absurdly comical.

"SUDDENLY, a single red ray flashed from a source I judged to be about five hundred feet overhead and poured upon a raised platform or stage. Contrasting so vividly with the blue luminescence about me, it made a startling and beautiful effect, when the place which it bathed seemed to move, I noticed, and something rose from the floor which soon resolved itself into a huge egg. I turned to my companion to ask if this effect was obtained by means of the ray or by trick stages, but a glance at his stilled antennae turned me back again with a sigh.

"Now the red ray turned slowly to more of an orange, and from this point on it changed constantly, while the egg slowly opened and a creature about man-size, but cleverly costumed to represent a worm, came slipping out. I wondered idly if all worlds were blessed, or cursed with worms so closely resembling terrestrial ones, while I watched the creature wagging to and fro—grubbing imitation leaves—and not mushroom tree leaves either.

"Then, seemingly from the darkness, it drew a golden thread and began to weave a shimmering cocoon about itself. Under the changing lights—subtly blending—the glossy cocoon grew and stilled, until a butterfly crawled out, keeping its back to the audience and quivering its irridescently golden wings in the orange glow. Slowly it turned—and Good God—it was a woman! I started to my feet with my heart in my throat. The beetle man turned quickly and stroked my boot gently as one would pet a nervous horse, at the same time motioning for me to sit down. I pointed to her. He nodded in a maddeningly indifferent manner and motioned me back to the fur robe. A woman up here, I thought as I took my seat again. Impossible! The chances were but one in a billion that evolution would take the same turn here in this far world under conditions so different. And such a highly organized creature as man? It was a clever illusion instead, I reflected bitterly, put on undoubtedly for my entertainment. If so, it was well done.

"I studied her thoughtfully. From under the cap which held the antenna of the butterfly, it seemed that I could see a black curl. I was at too great a distance to guess the nationality that they had chosen to represent, but the movements of the dance were Oriental rather than Occidental, and had certain steps that reminded me of the Navajo Eagle dance.

"At this moment, a shower of golden rain beat down the quivering wings and very slowly the egg, cocoon and butterfly faded out as the golden light became darker and finally disappeared. Realizing now that it must have been an illusion after all, I clutched my head in my hands at the breaking of that hope, which had fluttered in my heart so wildly, in spite of all that my reason could do to crush it. I was aroused from this bitter revery by the beetle creature who insistently plucked my sleeve. He indicated that he wished me

to get up. I looked at him in weary puzzlement. He could never have understood how utterly heartsick I was at that moment for my own kind.

"When I did not immediately rise, my little fire-beetle tried to pull me up in order that he might communicate to me what he wanted me to do. I rose wearily and again followed him through more crowds and another door that opened silently before us, and closed behind again, this time leaving us alone in another long corridor with the mosaic floor lights. Then suddenly I decided to try and make him understand.

"'Wait!' I said desperately, 'I won't go another step until you tell me where and what she is.'

"The turned and looked at me. I put my arms up for wings and ludicrously, I suppose, 'mocked the butterfly dancer. However, I did not mean it for a comedy. He bowed low and started on again. A wave of tumultuous hope surged through me, and his steps that were rather slow before, now seemed to drag. I longed to pick him up and run, but even as the idea flashed through my mind, he turned, and again a concealed door in the wall opened, this time disclosing a spacious room hung with rich tapestries and lit by a single red jewel-lamp that glowed in the low, curving ceiling like a fiery mock sun. But my eye sped over all of these things and came to rest upon the girl.

"She was seated upon a curiously carved divan, casually lacing up a sandal, and dressed as she was, in a dark Egyptian-looking costume which set off her pale ivory skin and long, obliquely tilted eyes, she looked like the Beautiful Queen Nefertete come to life.

"She looked up casually enough at my guide, but when her shadowy eyes turned to me, she gasped and clutched the couch. Consternation and unbelief struggled on her face as she turned back to the beetle-thing. He bowed, held up three fingers, and sweeping his arms out in a curve, gave what I interpreted as a fairly good pantomime of my capture. It seemed to satisfy the girl, for she jumped up and ignoring the dragging laces of her sandal, ran lightly over the floor, grasping my hands and pouring out a torrent of words in an unknown tongue. I returned the pressure of her fingers as I answered:

"'Just go right on talking—it is wonderful to listen to you even if I don't understand a word.'

"She hesitated with a shade of embarrassment in her face as she asked one question which I took to refer to language.

"I smilingly shook my head and shrugged my shoulders. She laughed back happily and bowing to the beetle man who immediately withdrew, she held up three fingers and touched her chest. Again the sign of three. What could that mean? She saw my puzzled look, and going over to a typhon-headed table, picked up a short black stick. Then kicking back the corner of the soft rug upon which I was standing, she knelt on the marble floor and drew a small circle. When she put lines on it that radiated outwards, my face lit up with understanding.

"'You mean the sun.' I said aloud.

"Just around this she drew a circle, and then turning, held up one finger.

"'Mercury.' I said, realizing now what was coming next. She drew another circle and then at the third circle she paused and said:

"'Mu!' pointing from the spot on the third circle to herself and then to me.

"I began to struggle with my forgotten philology. The word which she gave for the earth caught my attention. I remembered that in the language of the Chaldean priesthood, which was already dead in the time of King Hannibal, 'Mu' was the word for 'land' or 'place.'

"I rubbed out her drawing with my sleeve and taking the black marking substance from her fingers, I drew the map of the earth and pointed at her. She nodded smilingly and drew a five cornered island about the center of the Atlantic Ocean. I began to suspect that she was having a little joke at my expense when she pointed to it and said:

"'Atlanti Mu.'

"I LOOKED at her doubtfully. She had first told me that she was also from the earth. That was possible enough, but that she should claim as home that half-mythical land which the waves of the ocean had closed over some twelve thousand years ago, was asking too much. She read the doubt in my eyes and laughingly held up one finger. Now she pointed in turn to Egypt, South America, Minos and Greece—holding up two, three, four, and five fingers. It was as clear as the Mississippi river, and I said so. She evidently knew what I meant for she put another solar system beside my map of the world. Then she tapped the fourth ring and looked at me with a serious, questioning glance. When I nodded my understanding of that, she tapped the earth and back to Mars again, ending up by pointing at herself. Was she trying to tell me that the Martians had once been on earth?

"While I was studying this new idea, she tapped my knee again and pointed to the world map. So she wanted my nationality? I obligingly pointed to America. She shook her dark curls in an emphatic 'No!' Then she touched my blonde hair and tapped the Scandinavian countries. I laughed. Evidently she thought that I was trying to tell her that I was an Indian! I nodded, and pointing to England, drew a streak over to America. This she understood, for she smiled and rising lightly, walked over to her table where she opened a curious small box and taking out a bracelet and necklace, handed them to me.

"The necklace was distinctly Egyptian work, done in dark, heavy gold and having a pendant emerald, which in itself would have been worth a fortune on earth; the bracelet, however, was not so easy to place. It was formed of five coils of a snake, which I knew was the ancient old-world symbol for royalty. Its ruby eyes sparkled in the light almost as if it were alive. As I handed them back, she put the serpent upon her arm and held it up for me to admire. Which I did.

"Then suddenly she rose, and going over to a chest or strong box, brought out such a vase as I knew could only have been produced during the golden age of Greece. I touched it reverently.

"'Exquisite!' I whispered—*'anthos horeus kallistos'**—the ancient Greek words slipping from my lips as naturally as if I had been back in my classroom at Yale.

"The smile on her scarlet lips fled and the long, black lashes opened in startled surprise.

"'Is my friend able to converse in this tongue?' she asked in soft and halting Greek.

"I nodded with delight, but the torrent of words that she now poured forth simply paralyzed the two years of grammar and reading which I had painfully imbibed during my Freshman and Sophomore years. I signalled surrender and we began all over again with simple words and short phrases, while I hastily reviewed declensions and made funny blunders. But we understood each other at last. My first sentence should by all rules have been something poetic. Instead it was:

"'I am so hungry!'

"She laughingly apologized and led the way to a

* Most beautiful vase.

dark blue hanging which she drew back. Then with a little mock bow, she indicated a classical dining room beyond. Though the marble topped table was empty, I lost no time in sitting down beside her on the divan which she had chosen. This lack of good breeding, or table manners, or something, caused her to remark that her people were accustomed to eat reclining and the other divan was meant for me.

"'But it is our custom to eat sitting up, and besides,' I added with a smile, 'I would rather sit here than over on the other one.'

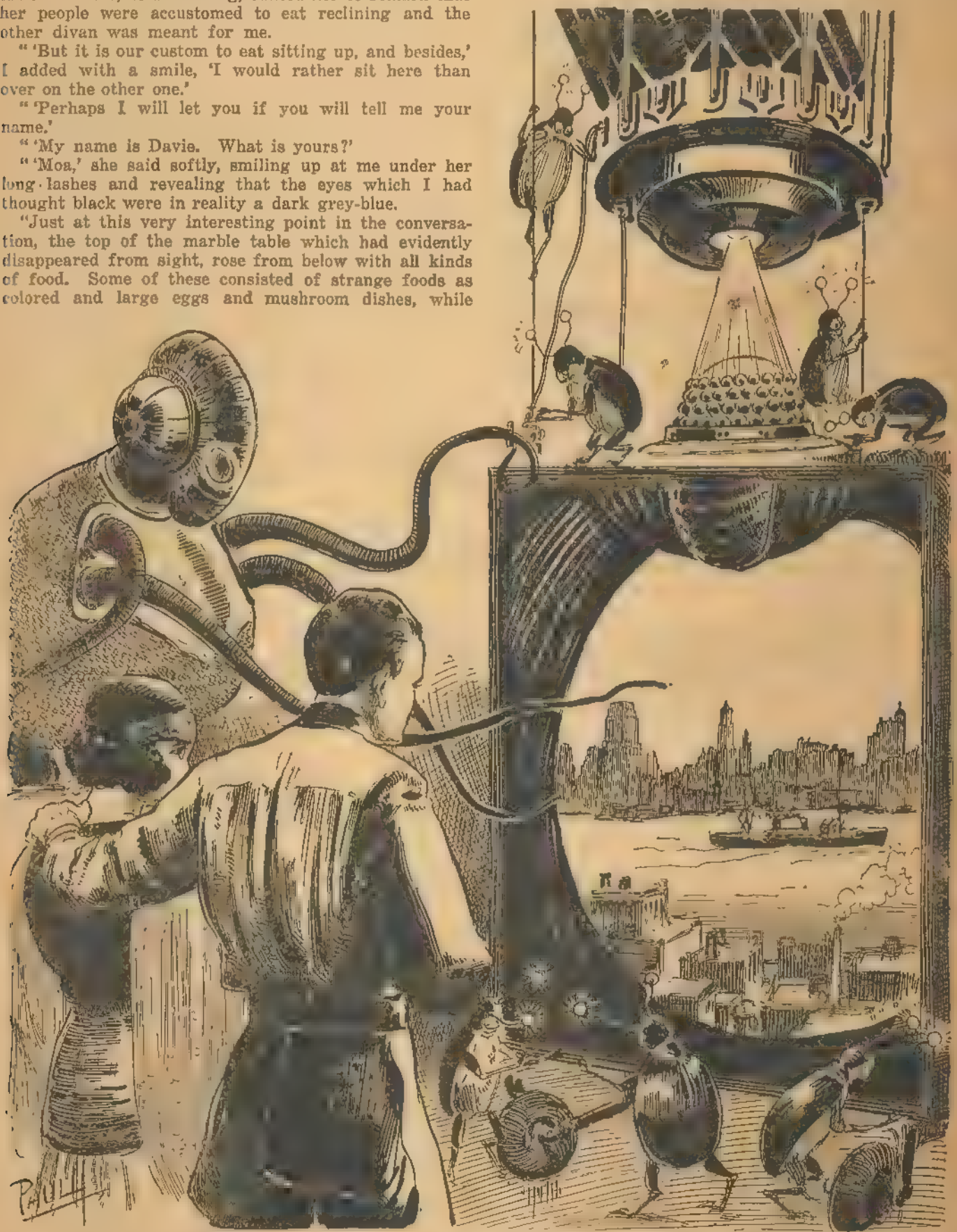
"'Perhaps I will let you if you will tell me your name.'

"'My name is Davie. What is yours?'

"'Moa,' she said softly, smiling up at me under her long lashes and revealing that the eyes which I had thought black were in reality a dark grey-blue.

"Just at this very interesting point in the conversation, the top of the marble table which had evidently disappeared from sight, rose from below with all kinds of food. Some of these consisted of strange foods as colored and large eggs and mushroom dishes, while others were of familiar vegetables and fruits such as the fig, apple and date. Moa read my thoughs at this sight and remarked:

"'Yes they are earth foods. The silver men of Four brought them long ago and they are cultivated arti-



I was going to turn my eyes back to his helmet when I saw the glass becoming opaque. Then it cleared slowly and I recognized a street in the heart of New York. Even as I watched, the slender feeler-arm of the Magu touched a dial and the street faded into a grey war ship.

ficially here. Our own digestive tracts can not take the synthetic foods of these people.'

"But I did not even notice this last remark.

"'What was that about the silver men of Four?'

"'Didn't you understand my map?'

"I shook my head.

"'Well, Davee, I said that the men of Four came in great metal ships like yours . . .'

"'How do you know what kind of a ship I came in?'

"'The little one who brought you in to me told me with his hands.'

"'Oh.'

"'As I said, the men of Four came down in seven great metal ships and landed in the Palace Gardens in Atlanta-Mu just after their defeat by the Greeks, twelve thousand earth years ago. I will talk in earth years because it is more familiar to you, though you know it takes us about twelve times as long to get around the sun.'

"I nodded.

"'The men of Atlanti-Mu were superstitious and thought these strange things were fiends of some kind, because they thought that their Gods looked like us, you see, and so they fought the men of Four. In that battle many people were captured and all kinds of things such as ornaments, furniture, food, animals, clothes, and manuscripts were crowded into the metal ships and carried to the white cities of Four. There we were put into glass cages and the atmosphere pumped in to a comfortable pressure.'

"'Were you among them?'

"'No, but my ancestors were. This bracelet comes from the royal family of Mu.'

"'But if you are from this land, as you say, why do you wear Egyptian clothes and talk Greek?'

"'Because, as the number of the captives dwindled through succeeding generations and the line of descent narrowed, fresh raids were made upon these later civilizations. Even so late as thirty years ago the men of Four swooped down on a wrecked sailing ship and brought back the man of blonde hair and blue eyes, who later became my father.

"'But Moa, tell me then why you are here and not on Four?'

"'Because these men of Five-Three breathe the air of about the density that we are used to, or in other words, as Five-Three is very uneven in its surface, the air in the valley bottoms is heavier than on Four, for that planet is flat and the air is evenly distributed.'

"'Then these Fire Beetles are not your men of Four?'

"'No, indeed. We were moved here several thousand years ago.'

"'And I take that by Five-Three you mean the third moon of Jupiter, which is the fifth planet?'

"'Of course it is really the fourth, but bodies under two thousand miles in diameter go by another notation and the first moon is very small.'

"I nodded. 'That is plain now, but again back to Mars. Why did they go to our earth in the first place —these Martians?'

"'Is it for you to ask such a question, Davee? What was the object of your trip here?'

"'I suppose that my father wanted to find out if Mars—I mean Four, is inhabited.'

"'You have answered your own question.'

"'Then why do they sneak down and steal men like your father, and not come to the cities in the open.'

"'Because Davee, we have not yet outgrown fighting.'

"'Oh well, who cares, when they feed us like this?' And I helped myself to some delicious fig pudding.

"Astonishment swept over her face at this remark, but as she watched me eating, the amused twinkle which was almost never absent from her long, shadowy eyes came back, and she laughed:

"'How surprising and funny you are, Davee!'

"'Am I?' (finishing the pudding) 'But so are you, to me.'

"'What is the most surprising thing about me?'

"'Frankly, it is this "Mu" of yours. That island is a fable now and all there is left is a bed of sea weed. The record of the submerged land which Plato gives in his Timeus, is now regarded as nothing but pure fiction of his own.'

"'How strange, Davee, that even the history of a great nation should pass so completely away. Mu used to be the world power and all of the other nations on both continents were subject to her armies. Her palaces of marble and gold were the wonder of the entire earth. Her sages kept the lore of the world and taught sciences which have been lost in the veils of time and had to be discovered over again.

"'But my people here saw the destruction of Mu through the Loavu, or the seeing machines of Four. It was a horrible sight. One night of earthquake, with the seas of lava lighting the ocean in a bloody glow, and then while the people ran in every direction under the crumbling pillars of the city, the whole land gave a last shudder and went down forever, under a boiling ocean.'

"'Did you say that the men of Four had telescopes eleven thousand years ago?' I said following another track of thought.

"'Four is a very old world, Davee.'

"'And I suppose that they look upon our little span of history as a day and upon us as children?'

"'You are proud, my friend, but after all we are to these people animals of inferior intelligence. The men of Five-Three are kind, however, and allow us a great deal of liberty in their city. I say "us" rather naturally because up to only two earth months ago my mother was with me. She was proud like you, Davee, and she longed to return to Three. So bitterly did she wish to go, that the men of Five-Three were willing to take her back but the Magu forbade it and at his refusal, she died of grief and disappointment.'

"'And who is this Magu?'

"'A scientist from Four who lives in the observatory and consults with the inner circle of learned men from Five-Three on their problems.'

"'A sort of commander-in-chief from Mars?'

"'Not commander—just adviser. He does not stay here long. Another relieves him and he goes back to four to recover. It is the atmospheric pressure—you see, it is as if we were to go down to the sea floor. We can stay down for a while, but not very long.'

"I nodded thoughtfully.

"'But you must not suppose that I am a mere pet. I have taught these men of Five-Three to enjoy my dances, and now I will gladly make you my assistant, Davee. Together we can devise new dances that will interpret other phases of earth-life from those which I know so well. You can help me with my costumes too, I will teach you about the harmony of colors. You see the lights were my accompaniment, for these creatures love light as we love music. They have no ears, but they are sensitive to the vibrations of noise. Their senses are higher than ours—extending to higher vibrations. The color symphonies which they love so would blind us . . . but you are not listening, Davee!'

"'I do not want to stay here, Moa. I want to go back to earth—to my own kind. I want to give my experiences to the world—my world.'

"'A flash of pain lit her eyes for a moment and then she said softly:

"'Very well, Davee, it shall be so if I can do anything to help you. I will arrange for you to meet the Magu. At present it is late and "Goago" will tell you where you may sleep.'

"With this remark she rose and walking with stately dignity toward the doorway, pulled a tassel hanging there. (This I rightly guessed to be a signal for the return of my friend, the Beetle-Man guide.) Then walking toward the opposite side of the room, she turned, saying quietly:

"'I will see you again when I have arranged the interview,' and giving a low Oriental bow, she disappeared through a concealed door, which closing silently after her, left me alone to bitter reflections.

"WHEN I awoke after a good long sleep in the luxurious bedroom to which I had been ushered, the first thing that caught my attention was a marble pool full of sparkling water, as seen through a low, arched doorway. When I got back, however, and began to look for my clothes, I discovered that some one had taken them away while I slept and left in their place—a costume of Ancient Greece! I began by calling for my own clothes and ended up by cussing, but I got no reply to either method. Then in desperation, I began to get into this new affair with awkward fingers and a raging temper. If a little Beetle-thing had come around just then, I would probably have smashed it and waited the consequences with satisfaction, but when silent doors in the wall opened before a well-set table, I forgot my ill-humor in a wonderful meal.

"Before I had quite finished, a heavy curtain hanging over one corner of the dining room parted and Moa stepped into the opening, surrounded by a deep garnet glow that poured upon her from behind. My bite of food stopped half way to my mouth at the sight of her. She was breathlessly beautiful in her full red skirt and filagreed gold breast ornaments. The serpent bracelet flashed on the arm with which she brushed back her heavy curls, while its ruby eyes gleamed in the red glow.

"Walking slowly toward me, she seated herself on the next divan with a 'Still eating sitting up, Davee?'

"I had planned to begin with an apology for my real or imagined offences, but she was in such good humor, that I saw it was unnecessary. I was grateful for this because I am awkward about apologizing, especially when I am not certain as to the offense in question. So when I saw that she had evidently forgotten her ill-humor of the night before, my spirits rose. But if they had risen for this, they soared when she announced that she had arranged the interview with the Magu, and that we were to go up to the observatory immediately.

"Laughingly she apologized for the Greek costume, explaining that she had ordered that my clothes be sent through a much-needed cleaning process. With a whoop of relief and happiness, I whirled the astonished Moa off in a waltz. When laughing roguishly, she broke away and ran back to the room she had just quitted, I ran after her—almost stumbling over a very much startled Beetle-Man who had just come in. The frightened little fellow stopped to flash some information with his tiny hands to Moa and then fled—his antennae fairly radiating his fright. I laughed and mocked his comical little face, but the girl only smiled with a trace of anxiety and motioned me to follow her.

"As we stepped out into the corridor from another draped door, I wondered if she would have one of the globes call for her, but evidently she knew the way very well, for she started down the great hall with the mosaic floor and the glistening walls as if she understood her direction, while, charmed by the picture she made with the lights playing about her, I followed in silence. Suddenly she turned to the side and pressed a part of the floor pattern—a small red garnet—with her sandalled foot. Immediately the heavy walls parted, disclosing a square curtained room, into which we stepped. The door closed silently behind us, and I felt a slight swaying motion. I turned to Moa in surprise, but she smiled and said:

"'We are ascending to the observatory, which is on top of the high peaks. It is made entirely of heavy glass and therefore only used when the sun is low.'

"'Why only when the sun is low?'

"'Because as you have probably guessed, the men of Five-Three are really a type of nocturnal animal and their eyes can not stand much glare. At one time, still within their historical records, the giant Jupiter was a sun to his system, but they have lived in caves so long by artificial light, that their eyes have degenerated, as it were.'

"I was just going to make a comment when the curtains parted and we found ourselves facing a great oblong dome of glass, which the last long rays of the sun lit with a deep golden glow. On one side, the steep sides of the peak upon which this observatory was perched, fell away to a valley not unlike the one from which I had been captured, while on the other they dropped to an emerald sea, on which Jupiter poured his garnet floods of light.

"Many huge, curious instruments filled the place—some deserted, some in the process of construction or repair and some surrounded by swarms of Beetle-Men—making notations on metal sheets and engrossed in silent debates. In the center of one of these groups, on a great crystal chair, reclined a creature of about eight feet in height whose shining silver scales reflected the mingled light with a dull gleaming radiance, as well as tints of the glowing Beetle-Men who moved around it. Assured by a nod from Moa, I knew it was the Magu, and I looked at it curiously. It had no wings, though the body had a wasp-like form. The large chest was the most prominent part of its body. The hind legs were very long and thin, or seemed so as they sprawled out in front of it across the marble floor, while the upper pair of legs, on the other hand, were not quite as long as our arms. I saw no sign of a third pair. The thin delicate upper legs, no thicker than a girl's wrist, extended to a fine, thread-like point that coiled itself around an instrument dial on the table before it.

"'What a nightmare!' I whispered to Moa.

"She smiled up at me.

"'Hasn't it any face—except that dark spot in its silver head?'

"'The hole is for it to see through. The silver metal is its helmet head. I never saw one without that on.'

"'And that skin of silvery scales—is that its body?'

"'No, air-pressure armor.'

"'What is the metal?'

"'Atal. An alloy stronger and lighter than silver.'

"'But what does its skin look like?'

"'We never saw one for so many generations, that we only have tradition. Our myths paint them as having reddish skin with minute hairs which are sensitive to very high vibrations. It is so long ago that we have always called them "the silver men of IV," for it is just as you see it now as when they first stepped out of their space ships upon the palace grounds at Mu.'

"I was about to ask another question when the group of Beetle-Men about the Magu bowed and withdrew. One glowing little creature, evidently a sort of page, now directed the attention of the huge silver helmet

to Moa, who bowed and approached. I followed slowly.

"'Magu of IV, my companion who traveled to Five-Three in a space ship, desires a conference with you. He understands Greek but gives the name of Davee, and his race as Celtic.'

"BOWING again, she turned and walked away slowly. I was watching her as she strolled up to an instrument across the room and turned the dial, when a thin clear voice said in perfect Greek:

"'Can you understand this tongue, Davee of III?'

"'Yes sir.' I answered involuntarily, as I glanced around behind me to see where the voice had come from.

"The silver arm pointed to a tiny metal horn on the table.

"'It is here. I bring my voice down to the rate of your sound vibrations as our organs of communication vibrate at different frequencies. Now, what have you come to ask me?'

"'If you could help us to return to the world of Three?'

"'I could. But I do not care to.'

"'Why?'

"'The world of Four does not as yet wish to communicate with Three. At their present early stage of development, the race of Three has not advanced enough intellectually to make such a communication profitable or even safe.'

"'But you are judging the world of Three as it was about five or ten thousand earth years ago. Now we have steam engines and radios and aviation . . .'

"'We see your material accomplishments through this.'

"He pressed a lever and a large machine rolled toward him from its place against the window. Doors in the cabinet opened, disclosing a glass disk. I was going to turn my eyes back to his helmet when I saw the glass becoming opaque. Then it cleared slowly and I recognized a street in the heart of New York. Even as I watched, the slender feeler-arm of the Magu touched a dial and the street faded into a grey war ship. Guns were belching projectiles from her sides. I was unable to see the flag.

"'It is this sort of thing that we object to. The elements of scientific knowledge in the hands of a race just emerging from barbarism is perhaps the most dangerous period in the evolutionary history of a life type. The former pastime of war then becomes so destructive that the race rises above it or else that pastime wipes them out. The men of Three are approaching that crisis.'

"'Don't you ever have wars on IV?'

"'Only in the ancient history of our planet; but they went out about five million years ago, along with national boundaries and fuel machinery.'

"I looked at him thoughtfully for a moment and when he next began to speak, it was to interpret those thoughts.

"'You are wondering why we have never tried to communicate with Three, in order that we might help them to advance. I will answer that question with another. Why should we? Are you people interested in the scientific enlightenment of the Hottentots? Or leaving your own kind out of the question, why do you do nothing to help the advance of that tiny race upon your planet which have some very keen senses though in a different range from your own?'

"'I can not imagine to what race you are referring.'

"'I believe that you call them Ants.'

"'Ants!'

"'You admit that they have nations, wage wars, build cities, divide up their work among professions, herd domestic animals, attend meetings, harvest again and hold competitive games for amusement.'

"'But they are not our intellectual equals!'

"'They are not so far behind you.'

"'It pleases you to be sarcastic.'

"'Not at all. I am merely telling you the facts. I would add that they have greater chance for development than your own race, because egg-laying animals tend to have a more genuinely co-operative spirit, especially where the young belong to the state.'

"I decided to change the subject.

"'How long have the men of Four known these creatures of Five-Three?'

"'Since the passing of the last meteoric cloud which brought on an ice age in each of the planets. We had known of each other, long before, but this calamity caused us to pool our knowledge and inventions for the comfort of our races. Since then we have communicated on all of our problems, and at present we are busy with a colonization plan for other planets.'

"'In our own system?'

"'No. There are two reasons for this. One is that there are no more satisfactory planets left. One has too much air disturbance, due to the terrific heat on the inner and cold on the outer portion. Two is harboring a jungle life that might evolve in time to save itself from the conflagration. Three is in the same state. Both are interesting for observation. The outer planets are too gaseous and have as yet too low a density.'

"'What do you mean by "evolving in time to be saved from the conflagration?"'

"'That was the second reason which I was about to mention. You probably know that the big blue white sun, which makes an equilateral triangle with two fainter ones—our notation X-III—and yours . . .?'

"'Vega,' I supplied.

"'Because Vega is approaching our sun at the rate of . . . please give me a sketch of your modern measuring system.'

"I gave the foot, and was about to give the metric table when he interrupted me.

"'Because Vega is approaching our sun at the rate of 128,676,500 miles a year (revolution of Three) while our sun is rushing to meet it at the rate of 400,000,000 miles per year. Also the huge blue-white sun which is accompanied by a tiny planet-like sun companion . . .'

"'Sirius,' I supplied again.

"'Very unscientific names, but let it pass. That monster is overtaking our sun from behind at the rate of five and six-tenths miles a second. Thus, as it is 47,000,000,000,000 miles away, it will crash into our sun in 265,520 and 21,571,600/177,010,400 years if my figuring is correct. When that conflagration comes, we hope to have types bred for and living on other systems.'

"'You didn't do that mentally!'

"'And why not? Those are simple sums. We must deal with complicated problems when we intercept light messages from other systems, for example. Some of the most involved mathematics are called into play on System or Universe 327, which is thousands of light-years distant.'

"'What do you mean by "light messages?"'

"'Light is the best medium with which to pierce a vacuum. We signal on the sodium lines by using a strong sodium light. As I was saying, this race, inhabiting XGR, a sun of Group 327, is billions of years older than our entire system. Since we have learned to decipher their messages flashed from their first sun-colony to their other sun-colonies, we have advanced our knowledge tremendously.'

"'But what do you mean by sun-colony?'

"'A sun with its family of planets is a sun-colony.'

"'But why do they settle so many other suns?'

"'Because as their Universe whirls around on its nucleus, the inner suns through countless billions of ages tend to come together as the whole mass becomes more compact. Then slowly the central mass begins to form—a glowing furnace into which the inner suns finally plunge. This race, seeing what their fate would be, if they remained on their mother sun-colony, decided to migrate to a sun further toward the edge of their cloud or swarm of suns. Accordingly they perfected types to stand the known atmospheric pressure and other conditions of their chosen planet in the selected sun-colony and migrated. The new unit then colonized others. Their original sun with its group of planets has long since fallen into the fiery core of their universe, but their race goes on. As I said, it was their messages that we intercepted. Since then, or in the interval of the last million and a half years, we started working on the principle of their flashing machine. Though we perfected it some million years ago, we have never heard from them and none of our messages have ever been answered.'

"'WHAT is your explanation?'

"'A fact that we should have taken into consideration but about which we foolishly hoped that we were wrong. It is that the cloud of suns comprising their universe is so condensed that the light of their own night sky is too brilliant for even a glimpse of the faint and distant light of our universe, of which the floor, as you probably know, is the Milky Way. I learned that quaint, descriptive name from one of our late captives from your planet. However, they are always moving outward, and some day when they reach a distant sun on the edge of their swarm, they will learn of the great debt that our science owes them.'

"'So it is their plan that you expect to follow?'

"'Yes.'

"'And the inhabitants of V-III?'

"'They will not be caught sleeping when our little family of planets—our sun-colony goes up in flame. There are plenty of other systems and as for the conditions—well a race can always change its type by special breeding. By the way, what is III doing to keep its unfit from degenerating the race?'

"'Why—nothing.'

"'That, I would say, is the first step from a state of the savage. Left to itself, evolution is turned this way and that by environment and circumstances. On every hand we have arrested the degenerate species. I suppose, however, that you have one sensible trait. You wage these bloody relics of barbarism, called wars, in order to get rid of your unfit?'

"'No we only send the best to war.'

"'What a childish make-up your race must have! No wonder that we have noted a great falling off, both in physical and mental ability in the last two thousand years. But, of course, you are at least learning atomic mechanics?'

"'No—that is—not yet.'

"'What? When the atom was discovered by a Greek named Leucippus, over two thousand years ago?'

"'But all of the science of the Ancients was lost after Greece fell. Rome was only a sort of hang-over. Then came Christianity and the Dark Ages. Oh, we have slumped, but it was a chain of circumstances . . .'

"'Undirected evolution, Davee of III, is most wastefully haphazard. However, my time grows short.'

"He signalled Moa with his silver-scaled arm. As she came up to us, his peculiar, thin voice began speaking again.

"'Moa, this man is to remain on Five-Three. If you desire to make him your mate and helper, you have our permission, as he seems to have the average Three intelligence.'

"'I do, Magu of Four, only if he too desires the union.'

"'I would not have gone back without her,' I answered quickly, 'for I said "we" in my petition to you.'

"'Then, Davee of Three,' came the quiet voice of the Magu, 'as the mate of this woman, you will be given your liberty of this globe. However, on the day that you go through the ceremony which your race calls marriage, you will also take an oath to never again try to communicate with, or travel to, your own kind on Three.'

"'I will give that promise, Magu of Four, on the day that I wed Moa.'

"Did he read in that answer of mine an unwillingness to promise immediately? The thought came to both of us in that moment of silence before he spread out his thin tentacle-like silver arms in a gesture of dismissal, for Moa said quickly to me, under her breath as we turned away:

"'Throw your thoughts elsewhere . . . quickly.'

"I laughed into her serious eyes.

"'That isn't hard to do. How can I want to think of anything else except our marriage.'

"'Then you did say "we."'

"'And I meant it, sweetheart.'

"I explained the English word as we walked toward the edge of the glass dome and I pointed down to the gorge-like valley below.

"'When I landed there in a jungle just like that below, I never dreamed that a fairy princess would turn this strange world into paradise for me.'

"She looked down the sunny face of the cliff that fell away with a dizzy drop to the blue-shadowed depths four miles below, where I knew that giant mushroom trees tangled their arm-like boughs in a perpetual twilight forest. Then slipping my arms around her slender body, I brought her eyes back to mine with a startled look.

"'Moa, forgive me, I would never have left a little girl like you here all alone on a strange planet with an alien race, even if I had not liked you, but I didn't realize last night what I know now. I love you, Moa I must always have loved you. I know that I always will. Perhaps, who knows, but in some mirage-land of the past, one of those dazzling queens of Mu, whose blood runs in your veins, smiled and broke the heart of a fair-haired barbarian slave, who could never hope to win her. His heart-hunger seems to have come down the ages to me—a most remote descendent. That is only a fantastic way of explaining a love that leapt into being with too fierce a flame in too short a time for ordinary explanation. But if it is a true one, then fate is still laughing at us, for it has placed us in eternal exile. Let us hope that some day a rescue ship will come and return us to human kind.'

"THUS ends my story. Nothing remains but the tale of feverish experiments with the light flashing machine during hours when Moa stood guard. Then followed more feverish hours of hunting for some one to receive our message. Luckily, I chanced on your instrument and from your actions knew that I had made an impression. We had to take a chance when you seemed to understand, even though you often turned off your instrument, or appeared to do so. Therefore, I told everything without reserve. With the informa-

tion you have, surely you can prove the sincerity of my statements. If you have not understood my story, you never will, for in less than one hour the Magu and his Circle return to the observatory, while Moa and I will take the oath of eternal and willing exile on the world of Five-Three. If you have any fellow-feeling, therefore, I beg you to publish my story and try to help me . . . S O S . . . David Thro . . ."

THE scientist and the millionaire were both reading over my shoulder as I took down the last letters and watched the flickering yellow settle back to two steady black lines.

After a moment of silence, Esteban sank down upon a stool, exclaiming:

"Well I'll be damned."

"Not you, but I," Larone said quietly, his voice trailing away to a bitter, sarcastic laugh. "Can't you just see it? 'Millionaire receives message from one of Jupiter's moons! Prominent scientist agrees, . . ."

"Now just hold on a minute. Of course we are going to use discretion about this thing."

"I think that was the wisest thought you ever expressed—especially after the remarks on telescopes."

"Pshaw, man you are too sensitive. You think the thing is a hoax to make fun of you because an astronomer cussed the principle of the telescope. That is the one thing that makes it all human—it is only a mark of genuineness for me. However, as you say, we must be careful. If, however, you would give me the set for a week or allow me to tinker with it here . . ."

"Certainly. Help yourself—but mum is the word." Then turning to me, "I suppose that your little task is over, Capt. Mathews, but when you leave my front gate—just remember that promise."

It was three months later that I again rang the doorbell of the Larone mansion. The same old negro butler opened the door, but this time he grinned a full display of ivory.

"Nevah min, that cahd, boss. They done been awaitin' all evenin' since you all phoned you was a'comin'."

As I entered the library, both Larone and the scientist rose from the davenport. The millionaire was the first to speak.

"So you have been doing some private investigating on our friend 'David'?"

"Yes, I have. I believed that story and I still do, so I decided to follow up the only clew that I could see. I took a little trip to Sitka. I had always been intending to go, anyhow."

"Well?" Esteban asked, rubbing his thin hands together.

"I learned that an old man and his grown son took the post of lighthouse keeper on an unnamed island. I was given to understand that the old gentleman was considered by the townspeople to be somewhat cracked, but that he knew machine parts, and found defects with the eye of an expert. He had a great deal of machinery shipped to the island, concerning which he chose to be mysteriously silent. The son was an amateur radio fan and kept in touch with mainland friends, by means of a small station which he had rigged up on the island."

Esteban sat down with a flop and slapped his knees.

"That all?"

As I shook my head in the negative, Larone waved me to a chair.

"No, it is not. I also learned that on the day which the sloop was to return with them for the winter, it foundered and went down with all hands. They were never heard from since, so the ship must have hit one of the famous uncharted reefs, that abound along that dangerous coast. As a relative to the young chap, David Green, I moved among the people and learned more. One young man who had been a chum of David's, confided in me that he had received a message from the island after the boat had gone back to Sitka but declined to say what it was. The most interesting information, however, came from a grizzled old fisherman, who said that on the morning on which the boat is supposed to have sunk, he noticed a weird bluish-white light hanging over the ocean, like a display of the Northern Lights. Being an old-timer in the north seas, he was impressed and puzzled. Finally he gathered a crew of other curious ones and set out to find the luminous core of this new magic. Much to his surprise, his search led him to the old island. Here too, higher in the air, the bluish-white glow lingered. Walking into the house, which was open, he found things thrown about and half packed as if both the old gentleman and the son had just vanished in the midst of their preparations to leave. The conviction that they were still somewhere on the island or that traces of them could be found, was so strong in his mind, that he tried to organize a searching party, but old superstitions of the sea had so gripped the crew by now that they fled from the island in a panic."

"Well, young man, that is pretty good." Esteban murmured as he patted his baggy trousers thoughtfully. "I did some little investigating of my own."

It was now my turn to be surprised.

"Yes, I took another clew. I started looking up the life histories of all present astronomers who seemed to be interested in Mars. I found that a man named Thromant was once employed by an observatory in a small town among the heights of the Andes. He was the only one who seemed to have a son named David. This young man, I learned, was a student first at the University of Arizona, but later transferred to Yale.

"A few years ago the suspicions of the police fell upon Thromant in a murder case and he was convicted on circumstantial evidence. He later escaped and shortly afterward the son also disappeared. Neither has been heard from since."

I turned to the millionaire.

"Surely, Mr. Larone, in the face of such evidence, you will no longer withhold this story from the world?"

"I simply cannot afford to have such a story connected with my name. It would make me the laughing-stock of the nation."

"But you, Dr. Esteban—surely you—"

"All the enthusiasm of youth is yours, Mathews. Suppose the story is true—what are we going to do about it? Rescue a man marooned with a beautiful woman in an interesting new world! Some of us wouldn't mind trading places with him! But seriously now. I have a certain reputation which I do not intend to throw to the winds."

"But suppose that the Magu arrived, and caught him red-handed? I have a notion that he was not a beginner at the art of thought reading. Besides, did you notice that David didn't finish signing his name, if it was Thromant? We only got the first four letters."

"Well, what do you want me to do? Weep, or hang a funeral wreath on the instrument in the tower room? I experimented with that machine for one solid month and I could never get one flicker from the sodium lines. I am not saying that you invented the story, understand, but it might be hard for you to prove that you did not, since the only letters that we could read between the two of us were S O S."

I nodded absently. I had not thought of this. Then with a burst of inspiration, I turned to the millionaire.

"Why not let me publish the story?"

"What?" Larone's voice was pained.

"I have not forgotten the promise. If names are so objectionable, I will change them all. I will publish it, not as startling news but merely as fiction."

The millionaire and the scientist looked at each other thoughtfully. Then Esteban began to smile. It was catching, evidently, for after looking from the smiling face of his friend to mine, Larone's eyes began to twinkle and unlocking a small drawer in a desk, he handed me the precious words I had scribbled down in the tower-room that memorable night!

And so I am giving out David Thromant's plea for help to a skeptical world—under the guise of fiction.

THE END.

A Criticism of an Interplanetary Travel Story

Editor, AMAZING STORIES QUARTERLY:

"When the World Went Mad", is an entertaining story, and well written, but I can not agree with you that the science is all good.

The increased rotational speed of the earth would not *do away* with gravity, but merely cause the centrifugal force to balance it. Gravity would be functioning all the time. The centrifugal force would be felt only so long as a body was in contact with the surface of the earth. The moment it ceased to rest on the surface the centrifugal throw would be lost as to it, the force of gravity would again assert itself and the body would be dragged back to the surface, to rebound again and again with increasing force as rotational speed increased. As to the sphere or space ship of Mr. Sherin, it would not be cast away into space, but would likewise rise off the surface and be drawn back. The increased rotational speed would not help it to leave the gravitational pull of Earth. The "initial impulse" of which Mr. Sherin speaks vaguely as being given to the space ship and which I assume was some impulse aside from the thrust of rotation, would need to be just about as strong as if the rotation were normal.

Another matter: I have not computed the rate of increase which would be necessary to counterbalance gravity at the equator but assuming that your boxed statement on page 554 is accurate, "that if the Earth were spinning about seven times faster than it does now, gravitation around the equator would be nil," we run against altogether sensational conditions. Normally a person at the equator is moving with Earth's rotation at a speed of, roughly 1000 miles an hour; at seven times the rotational speed this would be increased to 7000 miles an hour. If this rotational speed were suddenly decreased (and the decrease would appear to have been sudden, according to Mr. Sherin's language in the last paragraph of Chapter VI) to, say, roughly, nineteen hours for one rotation (18 hrs. 51 min. he says), there would, then, be a sudden decrease from 7000 miles an hour to somewhere around 1250 or 5,750 miles an hour. The results need hardly be commented on; and Mr. Sherin does, indeed, say that there remained about the equator little or no sign of humanity. But yet the Professor remained in the cavern where he turned off and reversed the power. He was clinging to some pipe, or something about the machinery, with his feet sticking up in the air. And yet this remarkable retardation of speed did nothing more than break his hold and throw him flat on his back on the floor of the cave.

We are treated every day to demonstrations of what happens when an automobile going even 40 or 50 miles an hour is stopped suddenly—but 5,750 miles? Whew! Please don't!

I have not figured what exact difference there would be in these conditions at New York and way points, but one doesn't need to figure to see that the blow would be "nearly, if not quite, as fatal."

Do not understand me as saying that the space ship, if it were secured to Earth until it were rotating fast enough, could not be cast clear of gravitational pull. It could—that is, provided Earth held together long enough, which is doubtful. But at the time this particular space ship left the surface and became a distant speck, the Professor was still wandering around on his feet without much inconvenience.

Nor do I say that increased rotational speed might not create a tremendous *wind* blowing toward the equator from the north and south, which might *blow* a person up into the air; but he would certainly not be blown clear of gravitational pull. He would fall back to Earth toward the north or south somewhere and break his neck and things just as the space ship would fall back and be crushed.

There are other frailties in the story. When the professor arrived in an airplane, his driver jumped clear of the plane in his fright, and remained poised in the air! This would not happen at all. Nor would the builder who fell from the scaffolding remain poised in air. He would hit the Earth's surface just as hard as if the rotation had been normal, rebounding again and again as the rotational speed accelerated.

Another matter I suggest, though I am not sure about it: What would happen to the air? According to Mr. Sherin's premises would it not also be cast far enough from the surface of Earth so that people would be unable to breathe?

And the behavior of the buildings in New York. Without denying a certain more or less powerful drift toward the equator from the north and south, I think it will be found on computation that by the time this were powerful enough at New York to topple the Woolworth Building, all life on the Earth would have been long since destroyed.

However, notwithstanding all this, which is offered in the most friendly spirit, I congratulate Mr. Sherin on his story, not only because it is entertaining, but because it fulfils the traditional purpose of our wonderful magazine by making people *think*. I ought to know. I've read every word it has spoken since birth, and my only complaint against it or its management is that it isn't twice as thick and doesn't come out at least once a week.

John W. Reeves,
995 Market Street,
San Francisco, Calif.

(If a stone or other weight is whirled around by hand at the end of a string the string will be stretched tightly, and if released, the stone will fly off at a tangent to the circle or curve which it was describing. This tendency to fly away applies to any body forced to follow a curved path and the tendency to fly away is generally called "centrifugal force" though more accurately, the centrifugal component of tangential velocity. A body on the surface of the earth, unless at the absolute pole, follows a curved path and is held to it by the force of gravitation. If gravitation was annihilated, all movable bodies would fly off at a tangent to the curve they were following. Contact with the earth is maintained by gravitation so that it represents the string spoken of above. A ship traveling to the east will not sink quite as deeply as one going to the west, because it has more centrifugal force acting on it, because it goes with the motion of the earth, and adds its velocity to that of the earth's rotation. Of course, the difference is infinitesimal, but it is still there. We do not believe that interplanetary stories can always be made mathematically correct. What we expect of an author is to do his best, in treating this interesting topic, because our readers want interplanetary tales. We feel perfectly justified in giving some stories bordering on extravaganza, and really have to do so, if interplanetary travel is to be the subject. A writer of twenty-five years ago would have been ridiculed if he had described the everyday things of the present, and would have been consigned to the extravaganza class.—Editor.)

A Contribution from a Reader Who Wants Romance Left Out of Our Stories

Editor, AMAZING STORIES QUARTERLY:

I have just finished the Fall edition of the QUARTERLY. "The World of the Giant Ants" is one of the best stories I have ever read. I was particularly pleased that it was not a love story. Now 99 44-100 percent of all fiction seem to be love stories. I hate to spend good money for a "different" magazine and get a collection of corn, so called "romantic" junk that may appear as scientifiction. I can read that sort of stuff in any fifteen cent magazine.

Writing seems to have long been based on the supposition, on second thought, superstition, that "love makes the world go around." Now I believe that science makes the world go around. That is why I am interested in the AMAZING STORIES. Even so called "modernistic" writers continue to propagate the delusion that in order to have an interesting tale, we must hitch a love story to it. To me science is the most interesting, the most romantic thing in the world. I don't need a vile villain, as the writer tries to present him, to stimulate my indignation; moreover, the scientifician author usually makes a botch of a character so different from his own personality. The average villain is not villainous; he is ludicrous. In a like manner the average hero is not virtuous; he is merely an atavist, an original "cave man" actuated not by the broad perspective which should characterize a scientist, but by the time-worn codes of "chivalry" and childishness.

I am glad to see Mr. Verrill get away from such practices and characters. This is seldom enough done in short stories and hardly ever in full length novels such as Mr. Verrill's. He seems to stand out among authors as one who knows enough about science to be able to compose an interesting story, without resorting to those expedients which poorer authors must use.

I am sure that if more stories such as "The World of the Giant Ants" are written and published such literature will outgrow the name of pseudo-scientific and become real scientifiction.

After this outburst, it may be deduced that I was not unpleasantly surprised to find the QUARTERLY with but one vestige of so called "romance", and that in its probably least interesting story. I wish I could say as much for the AMAZING STORIES MONTHLY.

But I really think very well of the AMAZING STORIES

John Pierce,
2315 East Tenth Street,
Long Beach, Calif.

(We have given a great deal of thought to your letter. If you should start in the 13th century, you will find that the greatest poet of Italy based much of his work on his love for Beatrice, then following down the centuries since that time, you will find love appearing in the monuments of the world's literature, so we feel that it is perfectly right, on the part of our authors, to enliven their stories with the theme; it has been used by so many of the greatest intellects in the world. We consider Mr. Verrill, one of our very best authors, and are glad that you appreciate him. But, is it not curious that in the section "Your Viewpoint", you will find another letter objecting to the very story you like so much? So do not give up romance. Read Corinne, Joseph Vance, Dickens and the works of Thackery, and you will think better of what you call a romance—Editor.)

(*Continued on page* 143)

Editorials from Our Readers

THIS being your publication, you, the reader, have certain ideas, not only about this publication, but about scientifiction as well. The editors believe that their mission is complete when they select and edit stories that go into the making of this magazine. On the other hand, they feel that you, the reader, have a more detached view of the magazine itself, and that very often your ideas as to the magazine, and as to scientifiction in general, are not only valuable, but are original and instructive as well. For that reason it has been decided to print the best letter—about 500 words—which can be used as an editorial, on the editorial page and to award a prize of $50.00.

The letters which do not win the Quarterly prize, but which still have merit, will be printed in the "Editorials from Our Readers" Department, newly created in this magazine.

Laudatory letters containing flattering remarks about the stories themselves, or of the magazine, are not acceptable for the editorial page. We want inspiring or educational letters, embodying material which can be used as an editorial along scientifiction themes.

Remember, it is the idea that counts. A great literary effort is not necessary, as the editors reserve the right to edit all letters received, in order to make them more presentable for publication.

Remember, too, that anyone can enter this contest, and everyone has an equal chance to get on the editorial page of AMAZING STORIES QUARTERLY hereafter.

This contest will continue until further notice. Contest each issue, closes the 15th of month preceding date of issue—viz.—contest closing date for the next issue is the 15th of March.

The Boundaries of Knowledge

THE intellect of man finds it almost impossible to conceive anything, either concrete or abstract, which is unending or boundless. Our language is barren of words to describe such a condition. Everything of which we have any knowledge, every stimulus which affects our mind or our five senses, can be visualized or described.

Therefore, when we consider the knowledge which we have attained, we are prone to use the past as a gauge, and fancy ourselves near the acme of learning. Some writers have already predicted a day when all knowledge shall be ours. They imagine a civilization troubled by no loves, hates, wars, famines, deaths, or disasters of any kind. What a dull and cheerless world to live in! Their predictions may come true but the possibility seems to grow fainter each day.

True in the past century every branch of human learning has advanced with tremendous strides—always using the past for comparison. But, instead of nearing the end of our possibilities, we are just reaching the point where we may appreciate how little we have learned, and how vast are the problems which lie before us. Every fact we snatch from the unknown, seems to be like planting a seed—Answer one problem and a thousand spring up as a result of the one you have solved. We are chasing a will-o-the-wisp, getting a flicker of knowledge occasionally, but following ever onward, we know not where.

An item in a recent newspaper mentioned the discovery by a German scientist of a new coal tar derivative, one of those strange, highly active hydrocarbons which have become so prominent in the past few years. A small matter. So small that it is given but a few lines as filler in the daily news. And yet it opens up more than a lifetime of hard work. Indeed, it would take a laboratory of experienced chemists many years to make all the necessary experiments. In the field of medicine alone, where this chemical family is particularly active, there are literally thousands of tests necessary to ascertain the properties and possibilities of this one new coal tar product.

Thomas A. Edison is quoted as saying that the human race is not capable of handling the machines and inventions which we already have. According to this view, the common knowledge is not keeping up with that of our scientists and inventors. The outposts and scouts are too far ahead of the army. This condition is brought about by the very nature of the work they are doing. Your savants are engaged in "research work." And very little of it is that. They are working in unchartered, unexplored territory.

Many forms of energy or matter of which we have known for years, are still dark mysteries to us. Electricity, for example, or light. Static electricity, the first form to be discovered, is still a problem. Little more is known about it today than when Benjamin Franklin was making his classic kite experiment. We have not begun to harvest the crop from the tree of knowledge. We have only picked the ripest fruit and that which seemed most useful.

At any rate, no modern Jules Verne can yet describe the boundaries of knowledge nor even begin to imagine a day when the minds of men will become stagnant because of the solving of all the riddles of the universe.

C. William Smith,
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Advanced Truth

WHAT is truth and what is fiction? Can we—human beings—who know so little, say this is truth and this is fiction. No! No more than a scientist can say this is a plant and this is an animal, for we have some that are part of both. Who can claim the right to say this is an illusion, this a truth? Can the greatest of psychologists tell you exactly what an illusion or what imagination is? No. They explain it, but how do we know it is not an insight into the future? We cannot say definitely, for we do not know. A fact remains a fact until it is proven wrong. So with Scientifiction.

I sit back and think. My mind sees things not yet established as known. Who knows enough to claim it is only my imagination? Great cities flash before my mind, great machines perform their duties without the hand of man. Above in the sky machines fly by so fast the eye cannot realize it. The time-table from New York to London reads one hour. Men figure in four dimensions. I listen to music from planets outside of our solar system—so far in miles, so near in time. Ah! Here is a message from Mars saying they have discovered what ether is.

War is a thing of ages before. This civilization is one of truth and exploration. We all co-operate. We have no system of lords, we are truly all equal, no longer verbally so. We are conquering everything. We know how to get a full winter's heat out of a glass of water. Conversation is no longer necessary. We read each other's thoughts.

There are no longer two answers to every question—only one—and we are seeking it. We have already harnessed worlds; now we are harnessing space. We have already harnessed the atom; now we are harnessing the ion. We no longer express distance in miles but in light years. We no longer express energy in horsepower, but in units consisting of millions of horsepowers. Impossible, does not exist. Improbable but a matter of seconds. Knowledge is supreme. Money, jealousy, pain, and sorrow are unknown, because they are conquered. Life is a matter of accomplishments—each as important as the other—all tending to bring man out of the wilderness.

Thus like a blaze or halo out of the darkness of unknown, stands the advanced truth encircling the worlds. Thus like a moth on an electric bulb does truth follow advanced truth, ever to find that it cannot quite reach the flame, for advanced truth is ever ahead. *And Scientifiction is advanced truth.*

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The Prophecies of Science

EDITORIAL comment in September "AMAZING STORIES" cites that scientists deem it out of the question that creatures like human beings are living on Mars or other far-away worlds, and goes on to urge that it might *not* be out of the question. The strange thing is that it should ever be doubted; but one thinks there may be better reasons than those adduced. On second thought, why waste time speculating whether similar conditions might not produce, *independently*, similar beings, when it is so plausible that they *came from a common source* already in being?

Doubtless there have existed in the solar system (to limit ourselves to our own world), in the hundreds of thousands of years, civilizations incredibly higher than ours. Almost as a matter of course they had realized our pet 1929 model dream, interplanetary travel. But, for reasons too remote for us, these civilizations were lost, and the far-flung colonies isolated. Perhaps the home planet blew up, or was run down at a celestial crossing. "A billion years means nothing in the general universe." Nor is it strange if we find no evidence of these remote civilizations.

Roy Chapman Andrews returns from the Gobi with tales of "tools used by human beings 150,000 years ago." Dr. John Winthrop Sargent, back from the land of the Incas, thinks "men lived in North and South America 200,000 years ago."

Let us wake up our imaginations! Why, civilization after civilization had been born, flourished and passed trackless away, while the Cro-Magnons and the Neanderthals lay yet in the dim future! Yes, even before the Heidelberg Man or the Pithecanthropus Erectus! Any one, or many, of these may have gone afield of their home planet, and left their seed. The Martians are our cousins. We can talk when the line is up.

It is not strange if those people could artificially change varying conditions to their liking until they could become "acclimated" to new and unfriendly environments. We could almost do it ourselves, and we are only infants, only playing at this game, the higher technique of which was elementary to those old ones. It does not surtax even our imaginations to see them settling down comfortably with their own favorite brand of air, heat, water, gravity, upon a barren rock in the planetoid belt; much less upon planets with conditions somewhat similar to their own.

Only a few moments ago (Universal moments) air travel, telescopes, railways, telephones, telegraphs, radio, electricity, were fairy tales. In a few moments more we shall ride the ether. Already we begin to feel out of date that we're not doing it now.

Let our "Amazing" ones show the way. They are conservative; they are not daring. Onward, "Amazing" ones! Do not fear! Turn the next pages of the book of the future! Ye are the prophets of a higher destiny. Seek it out. "Perhaps . . . a single Alif were the clue—could you but find it—to the Treasure house, and peradventure to THE MASTER too."

Judson W. Reeves,
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Scientifiction, the Highway to Constructive Thinking

FROM the time that man made his appearance on this earth, that undying desire to do something better and more exact than what his fellow man does or to acquire knowledge more profound or far-reaching than that of others, has led humanity steadily along the path of progress to our present day civilization.

This desire, coupled with the acquired knowledge of past generations, has developed into the most exact of all arts, "Science."

While imaginary theories and speculations have no place in scientific facts, still they are the fuel which feeds the flame of knowledge, for without them we would have no new lines of investigation. It is only by proving or disproving new and untried theories which are simply fiction, or at the best, only unknown quantities (until they receive the stamp of approval from science), that our most wonderful discoveries are made. This is where Scientifiction adds its bit to the scheme of things.

It not only furnishes new ideas and impressions to the trained mind, but it also furnishes an unending variety of scientific facts to the lay mind that are presented in such a manner that they constitute an education that could only be acquired elsewhere by years of patient study, but the greatest advantage of Scientifiction is its power to stimulate thought along scientific lines.

The ability to think and to concentrate one's thoughts along a given line is the one thing which has raised the modern man of culture above the plane of the prehistoric savage.

Scientifiction and science are bound together with bonds as strong as the human mind can forge, for without the latter the first could not progress.

Scientifiction, whether published and given to the public in story form, or locked in the brain of some scientist in the shape of speculations or visions of the future, is the basis from which all great things are developed.

No doubt the dreams and visions of the future as seen by some of the greatest minds in the world today would surpass by far anything published to date, along Scientifiction lines. If in the future we ever reach that beautiful state of existence described as "Utopia," it will be through universal education and the ability of the masses to think for themselves.

In order to think intelligently, it is necessary that we have food for thought, or in other words, some universal medium of inspiration, and in Scientifiction we have the medium that adds little by little units of scientific knowledge and furnishes a vast field for thought and in so doing it has proved itself of untold worth to mankind and earned a place of honor among the literature of the ages. And as we go on in the future, Scientifiction will become more popular and will win for itself the recognition it deserves as a vehicle for the expression of scientific possibilities and as a stimulator of that desire or urge which has caused man to battle untold obstacles and climb over the mountains of public criticism and ridicule.

Harry Henson,
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The Emancipation of Literature

UNDOUBTEDLY the most surprising, positive reaction resulting from publishing AMAZING STORIES has been in the science of psychology.

It is still too young a venture to fathom the ultimate effect on the minds of the people, but it is apparent to any unbiased observer, that in the field of literature, it is exerting its greatest influence.

We do not need to sit in the editorial chair to feel the new quivering of the literary world as judged by the mass of manuscripts submitted. As a reader, the constant production of scientifiction stories, astoundingly multifarious in plot and science, is sufficient manifestation of a great upheaval in the world of letters.

Heretofore, only a few such stories had been published but the majority were decidedly juvenile and ephemeral. Sophisticated society frowned and scoffed at stories having a vaticinated background—excepting biblical repetitions.

The embryonic author grew up in a bombastic atmosphere, assumed the code laid out for him by publishers of the old school, and writers' guilds, matched their code as best he could, and stifled all latent desire to be original and to write unhampered on any subject. Who knows what literary treasures of scientifiction were penned and instantly shelved merely to release that pent up longing to write without regard to tradition? Only a few pioneers ventured against these staid opinions and breasted the storm of ridicule that was sure to follow. For that reason Verne and Wells and a few others must always have our respect no matter what we may think of their stories.

It is but half the truth to say that life runs in cycles, for it is plain that, from our evolvement until our departure from this planet, the graphic delineation of the track of our mental activity produces a spiral, resultant from two distinct motions—involutely outward and helically upwards,—the former representing our volume of knowledge, the latter our higher development, while our daily progress may be shown on the chart as describing a node of varying area along this trail. Likewise each generation completes a spiral cycle interlocked with, but greater and more advanced, than the ancestoral cycle.

Since literature is truly the medium—the speculum as it seems—through which we are introduced to life in all its phases, creation in all its forms, past, present or future, real or imaginative, we should find there as true an encyclic reflection of our path up this spiral, as our human pantographs are able and willing to portray.

However, our pantographs have been figuratively living in a windowless house of solid boards with a few censored and antique pictures representing life (our literary gems) on the walls. A few found some knots and punched them out of the boards and beheld a world of rich material never dreamt of before. Then the mob of writers followed suit but their fogged and deluded minds so long shackled by tradition and stylists were unable to secure a true perspective and a mass of confused stories were soon produced.

There are still some barriers left but the perspective is broadened, the material is now infinite, the field is open to anyone. From the great byways of the world, numberless discouraged humans, people who always longed to write but dared not, people who never thought they could write before, people who tried hard to write but were unsuited for the old code, have lifted their faces, changed their course, and are succeeding, because of the psychological influence that scientifiction is having on press writers, columnists and publishers, as well as on the authors themselves.

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The Amazing Work of Wells and Verne

IT is worth while to consider the part Wells and Verne have had in the creation of the modern world of science. Certain it is that a real, plausible image must precede every invention. But here, in the creation of clear, definite concepts of the new, we have the very essence of scientifiction. While this form of literature was invented by an American, Edgar Allan Poe, and while America is the land of scientifiction today, Wells and Verne were its first two great masters, and it is chiefly to their work that we must look for scientific predictions that have been fulfilled.

Scientifiction stories may be divided into two general classes. In one, imagination predominates; the other is chiefly scientific. The fascinating romances of Rider Haggard are not likely to be realized. But fantastic as the tales of Wells and Verne sometimes appear, their imaginative structure is based on accurate scientific reasoning; and science is now far past the mark set for it in some of them.

The submarine is a most decisive illustration of our theme. When Verne wrote 20,000 *Leagues Under the Sea* the tale was given the same reception that the story of space-travel gets today. In the writings of scientists who have been connected with submarine work, that story, and the inspiration received from it, is mentioned with surprising frequency.

In *When the Sleeper Wakes*, Wells not only makes a remarkably accurate forecast of the airplane, but describes the actual sensations of travel by air, with a truth that has hardly been improved upon since his vision became a reality. Verne, too, foretold the airplane in *The Clipper of the Clouds* (1886).

In the field of radio, examples might be drawn from Verne's *Castles in the Carpathians*, and Wells' *When the Sleeper Wakes* and *First Men in the Moon*.

Another startling illustration is Wells' anticipation of modern warfare. The four great new arms are the submarine—which was mentioned above—gas or chemicals, the tank, and aircraft. In *The War of the Worlds* the latter three are depicted with an amazing degree of fidelity. The Black Smoke of the Martians is our poison gas, and is even discharged by a modern method. The Army Tank and the Martian Fighting Machine differ only in the mechanical details of the mode of locomotion. And in the Flying Machine, our author foresaw the greatest weapon of them all.

The present day triteness of *Around the World in 80 Days* is an example of the host of smaller things that might be detailed; and other writers have to their credit a thousand predictions that have come to pass.

But the greatest influence of Wells and Verne cannot be enumerated. It consists in turning the thoughts and aspirations of men toward science—in stimulation of scientific study and imagination among the people—and in paving the way for later writers, who have carried the subject to new heights. So great has scientifiction become, that the popular work on any phase of science can often be prefaced with an account of the verified prophecies in that line.

Then, with our knowledge of the crystallization of fiction into fact, scientifiction becomes a window to the future, through which the wise man may read the history of the race in the ages to come.

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Scientifiction and Literature

WE have witnessed a strange editorial experiment. What is more significant, we have seen it succeed. It was more than two and one-half years ago that AMAZING STORIES first appeared on the stands, and since then it has been gaining steadily in popularity and distribution.

Surely such a highly specialized publication—for not only is AMAZING STORIES limited to stories with a scientific background, but also, since the stories may not be too technical they must fall within a dozen popular fields—the future, interplanetary adventure, the fourth dimension, transportation, time-travel, etc.—must have its place, if not in contemporary literature, then in contemporary psychology and the so-called public mind.

Those who love scientifiction must resign themselves to the cold fact that it has no place in literature, at least no recognition in the time at which it is written. There seems to be an unwritten precept that literature must be based for the most part on analysis of human character and the effect of its environment, or else on other literature. Nevertheless science slowly insinuates itself into the classic. Today nearly every book contains a ride on a railway or on an ocean liner, with perhaps passages about huge skyscrapers or bridges or subways. Today such passages are casual; not many generations ago they would have been scientifiction. To-day a story depending on an airplane ride or a radio announcement for its dénouement is a melodrama; in a few decades this too will be casual, while melodramas will be based on the science of the time. Again, scientifiction that survives the years may in time mount into the realm of the chosen, where it was a literary pariah in its own day. Even today a mellow glow is beginning to surround the prophetic works of Jules Verne.

Why, then, scientifiction? What, if any, is its purpose, and what does it accomplish?

First of all it undoubtedly provides entertainment, but entertainment that has something of a foundation, and does not merely appeal to certain emotions, or keep the mind in a torpid state.

Second, it satisfies the imaginative layman's curiosity about science, and holds even more attraction for him, than do the various popular-scientific magazines. These magazines are obliged to present occasional technical articles, or describe devices whose uses do not concern the majority of their readers. They tell the

what has been and what is, with perhaps an infrequent article on what will be in the near future. Scientific fiction, on the other hand, tells him what may be—a far more interesting matter.

Third, and most important, it stimulates the imagination. Who, on reading of a space-flyer, does not imagine himself inside, bound on a glorious adventure, such as modern exploration has practically chased off the earth? Who, on reading of a time machine, has not dreamed of what he would do with such an instrument? Who has not envied the alchemist of the stories, and planned what he himself would accomplish with the power to transform baser metals into gold?

Perhaps scientifiction is only of the day, but so, too, is the tiny coral, who adds his dead body to the mighty reef. If an "amazing story" has made one tired man happier by taking him out of this sordid world after his day's work was done; if it has been read by one inventor, who was influenced thereby to create a device that has added to the comfort and knowledge of mankind—scientifiction has justified its existence.

Harold Donitz,
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Scientifiction—The Literature of Science and Life

SCIENTIFICTION! What a word—what a realm—what a collection of the most peculiar and amazing thoughts ever created by the human brain! Such seemingly impossible thoughts at the present, yet such inexplicable correct forecasters of the future! One can say with certitude that scientifiction is the literature of life. What life, governed by a reasoning, intelligent brain is not captivated by the astounding thoughts, ideas and predictions of a future life? Who has not wondered what lies beyond today?

Scientifiction is constructive. Without it science would be like the old Chinese, alive and living but unprogressive. Without scientifiction, science would be so complicated, so intricate that no one except technically trained scientific men would be interested in science. What would there be in the pedantic, technical terms employed by men who become almost monomaniacs on their subjects to interest the layman? It is even possible that without scientifiction, science itself would eventually die out, for without interest or purpose, where would the scientists of tomorrow come from? To be a scientist, one must not only have a complete knowledge of his subject but must have patience and the art of analysis combined with the power of right thinking and foresightedness. Most of all, to be successful he must have ambition and a purpose.

But with these imaginative, fantastic tales of possible impossibilities, the human mind wonders, ponders and questions—is it possible? Then common sense coupled with a sound reasoning power, enables the brain to think and the tongue to reutter Napoleon's words, "Impossible is a word to be found only in the dictionary of fools."

What invention, what discovery has not been foretold by the creative dreaming geniuses of science? The men who dream, inspire the men who do, and it is thus that we have the remarkable discoveries that the mediocre man marvels at.

It is indeed stupendous to realize the powers that are stored up in that thing called brain. The brain is responsible for man's dominance over other living organisms. The brain is man's chief factor in the struggle for existence. As long as he uses it, he shall be successful; but once let him neglect it and he is doomed to defeat and finally to destruction. And man realizing this, that his brain must continue its activity, keeps it active by the production of scientifiction, and scientifiction keeps man busy by trying to catch up with the trend of ideas.

Scientifiction is limitless, for as long as the brain exists, scientifiction shall exist; therefore, science shall continue to probe, to seek, and to find improvements, even to the end of time.

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Scientifiction, Synthetic Interpretation

SCIENCE, for all its meticulous observance of calm, dispassionate detachment, has a unique inconsistency in its structure. It is strongly analogous to an individual who is inordinately developed in one rigid direction. For all its ascetic abstention from romanticizing it is maladied with a nervous disorder, which, although not readily susceptible to apprehension, is none the less vital. Science, a cursory examination shows, is incorrigibly analytical; it avidly endeavors to reduce all material phenomena through the agencies of the senses and experiment to the classification of facts. Thus when the scientist in an emotional outburst congratulates himself upon the end of his task, he has within convenient proximity, an abundance of heterogeneous data. What use he will make of his information, he is not as a rule certain. His sphere of activity ends with the formulation of mathematical keys to natural phenomena. As for the co-ordination of the discontinuous mass of recordings, he has no worries. Because of the limitations set by the first principles of science, analysis is given excessive prominence whereas the interpretive and synthetic aspects of the work have been sadly neglected.

Perhaps this is not a liability; perhaps after all it is better to leave science sparklingly inquisitive instead of hampering it with the necessity of reflective interpretation. But the tendency is to forget or unconcernedly ignore, that, after facts have been catalogued, there yet remains the logical corollary of analysis, synthesis, to explain those newly unearthed facts and their own peculiar relation to the great world system. Here the eclectic art of philosophy insinuates itself into the arena, only to be greeted with a withering flood of vitriolic scorn; this is because there are few intellects so constituted in which the propensity towards introspection and observance of abstractions is sufficiently vigorous to produce any lucrative rewards. Scientifiction therefore must take up the fallen principles and innervate them, recharge their batteries in electrical parlance. In order to accomplish this, two things are necessary; first the unappealing garb of conventionality must be obliterated, and second the science interpreted must be so ingeniously inter-tangled amid the pulsing personalities of the narration, as to be thoroughly concealed. Stark, barren science is repulsive to many people who would be utterly absorbed in a fictitious exposition of it in the form of literature.

The human race in a way is strongly simian; the curious, inquiring disposition of monkeys will verify this statement. In just the same manner the homo sapiens' mind is lured into attempting to identify itself with external things under the notion that knowledge is power. Because of this biologic fact people often experience an attraction to science, but if by chance they meet the icy wall of formality, their interest is in a very precarious situation, indeed.

In concluding, the following may be noted to be true: Science which is pure analytical description is an incomplete expression of its actual implications; that scientifiction is interpretive as well as speculative and that scientifiction is the one essential complement of science in literature since it is what science is not—synthetic interpretation!

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Scientifiction—A Mirror of the Future

WHEN a man has become familiar with the world's history and has studied the trend of present events, it is only natural that his mind should turn to the future. After all, the past is not so engaging and the present is not so satisfying, but that a person wishes to have some idea of what is to come. An intelligent perspective embraces the three tenses: past, present, future. By future I do not mean the forthcoming events of a lifetime (these, more or less anticipated, are, compared to time, but an elastic present) but the far-off events and conditions that will occupy those years which only our descendants may see.

A former resident of a village often comes back to that place, to see what changes the years have wrought. In the same way, many of us, most of us, probably, would like very much to return to the scenes of our earthly existence—after a few centuries—to note how conditions have changed since our inhabitation. So far as we know, such a return is not possible. It would appear, then, that during our present life we must exercise and satisfy our interrogative spirit—or be forever ignorant of the subject. Limitless are the questions we ask.

What will the world be like in five hundred or a thousand years? What forces will predominate? Will men be powers or atoms? Will the highest plane be social or biological? Is there a limit to scientific developments?

Every man has a right to ask these questions. They are sound, practical, important. His error comes to light when he tries to answer them.

Would we expect the average man to be able to elucidate to others the evolution and development of the world? If we would not entrust history to a novice, why should we put futurity into the hands of tyros?

As there is a scientific way to study the past, so there is a scientific approach to the study of the future. This is through the knowledge of scientists—experts. Let us, the novices, question—let the experts answer.

These experts are, of course, the writers of Scientifiction. They are authoritative, they are scientific, they are instructive, they are preeminent. Their field is perhaps the broadest and the most exacting of all literature. No far-flung, fanciful inspiration for them! They must adhere strictly to scientific principles. Among their readers are students and critics of mathematics, physics, and chemistry, sharks ready to pounce upon the least discrepancy—the smallest exaggeration. Such expert surveillance ensures correctness. The scientifictionists have studied their subject and are capable of instructing others.

Scientifiction, in the aspect of which I am speaking, is a brilliant forecast of a marvelous future. It illumines the "dark ages" yet to be—it sends a bright shaft of light down the unlit corridors of time, dispelling illusions and ignorance. Without that severe, pedantic effect that great topics are wont to produce, it is yet one of the most instructive forms of literature ever invented. If a man would absorb information with pleasure and knowledge with entertainment, let him read Scientifiction.

R. Gordon Reed,
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Literature—The Mirror of Knowledge or Scientifiction—the Mirror of Our Age

AS we review the ages, we find that Literature goes through a series of phases, narrowing or broadening in its viewpoint according to the intellectual horizon of its period. It is as inevitable that the ages of literary greatness are also the ages of intellectual greatness, as it is obvious that an age of intellectual stagnation could never have produced a Shakespeare.

Compare, for instance, the literary brilliance of Ancient Greece with the literary barrenness of the Dark Ages. On the one hand we have but a small city, as the population of cities go today, and on the other an entire continent of many nations; yet in this city of ancient Athens we would find in that golden time, native teachers freely discussing the "why" of everything—including such subjects as: the nervous system, the flux and reflux of the blood to the heart, evolution, the nature of a vacuum, the shape of the earth, nature of the atom and many others that we are inclined to view as modern; while in the medieval continent of Europe, the minds of men, utterly ignorant of the knowledge the world had lost, discussed the possibilities of witchcraft and black magic. No wonder it has been said that if Aristotle could have fashioned a mirror to see through the mists of the future and could have peered ahead for one thousand years, he would have died of a broken heart.

Yet, if instead of only one thousand years, he could have pushed back the veils of time for two thousand, he would have seen scholars fleeing to mentally-dead Europe with their thousands of priceless ancient manuscripts from burning Alexandria and bringing in as a result—the Renaissance or rebirth of Learning. He would have seen the invention of the telescope extending man's vision to other

worlds and the discovery of new lands across the sea broadening man's knowledge of his own; while in the field of literature he would have seen the second great period of its history come to flower

But, if after piercing the elements of time for two thousand years, that old scientist Aristotle could have pushed back the veils for a few hundred more, he would have been enabled to look into our own age and see a new type of renaissance—the rebirth of science. For as the Elizabethan age was one of exploration and discovery, so our own age is also one of exploration and discovery, the difference being that where the Elizabethan adventurer explored new lands, our adventurers explore new realms in Physics and Chemistry, and we believe now that this second cycle of exploration is but the preparation for a third—the exploration of other worlds.

And since it is true that the classic world took their inspiration from their enthusiasm for learning, and the great Romanticists took their inspiration from the sudden expanse of knowledge that glorified their time, and even the realists but expressed the fatalistic philosophy following certain discoveries concerning heredity and environment, is it not natural that the coming of the machine age should again find itself reflected in literature, and the rise of scientifiction at this time should be an almost inevitable movement? We can no longer view life with the smugness of Victorian complacency, and this is true not so much because of the accomplishments of science, as because of its potentialities.

Scientifiction, therefore, is not a literary fad. It reflects not only the intellectual stimulation of our age, but also the ideals toward which the age is striving, and who can deny that it may not be the dawning light of another great flowering period of literature?

L. Taylor Hansen,
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Imagination Linked to Science

NOTHING deserves permanence that does not offer values necessary to human well-being and progress. Scientifiction is not an exception to the rule. Unless it can present such qualities we may hold out no hope for its permanent existence. This is as it should be to save the world from becoming a scrap heap of worthless antiques. Does Scientifiction possess the needed values? We believe that it does.

It deserves permanence because it offers

(1) ENTERTAINMENT

This would be a drab world if it contained no means of relaxation. Nothing is more harmful to human efficiency than monotony, and monotony inevitably results from the lack of proper entertainment. Hence, the most necessary element in our relaxation is change. Certainly Scientifiction offers this as few other mediums do. It transports the reader into fields entirely removed from his ordinary experience. Even the professional scientist finds Change here because Scientifiction lifts science out of the realm of trades and professions into that of vision and prophecy. Since this type of literature adds the elements of romance and adventure to the glorified aspects of science, it furnishes ALL the qualities of good entertainment and relaxation and is contributing a vital element to the well-being of the race.

Again, Scientifiction deserves permanence because it offers

(2) INSTRUCTION.

In the form of fiction many scientific principles are brought to hundreds who may never learn of them in any other way. Not only are the principles presented—they are stated in terms of experience such as are intelligible to all. The infallible laws of nature, the bases of the sciences, are set before men who might otherwise never observe and appreciate them. Hence, the instruction that Scientifiction affords includes both the imparting of knowledge and the broadening of the powers of observation and appreciation.

An element of instruction that is of vital importance is the stimulation of imagination. In this respect Scientifiction is unique. Bold in its predictions of future possibilities this mode of literary expression challenges the creative side of the mind and causes the imagination to operate. The value of this lies in the fact that all human progress has resulted from the visions of the world's dreamers. If the race can be brought to more active, constructive dreaming or imagining, the possibilities for future progress are greatly increased. When Scientifiction stimulates the imagination of its readers it is performing this invaluable function.

Furthermore, Scientifiction deserves permanence because it

(3) FOSTERS OPENMINDEDNESS

It is notorious that bigotry stood in the way of scientific progress in the past and so, to insure unobstructed advance in the future, we must have openmindedness. Certainly they who come under the spell of Scientifiction soon learn this lesson. As the circle of readers enlarges the spirit of openmindedness increases and the future is freed from the curse of the past.

Scientifiction possesses these values and, since values insure permanence, Scientifiction has come to stay.

F. D. Harris,
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Man as a Prophet

utter failure
yesterday—vision—prophecy—
chance materialization
Man

today—fact, etc.—prophecy—materialization

THE prophetic power of man is not a thing of recent evolution. It is as old as man himself; possibly older. It may have been a causative factor for his existence—it may be the same for his destruction.

To-day the power is the same as it was yesterday. The man is the same as he was yesterday. Still the prophetic accuracy has changed. It has become more perfect.

For the sake of convenience I have divided the period of man's existence into two epochs—yesterday and to-day. Yesterday is that period involving the time lapsing from the exhibition of vital energy on the earth until the latter part of the seventeenth century. Today is that period which has succeeded that of yesterday—and will *ad infinitum*.

Yesterday, mankind but recently incubated, possessed two things—his body and his brain. There existed upon the earth nothing that was not the product of a natural evolution. And this puny man had to coordinate his body and brain—cause them to function together. At first his body merely played with the forces of nature—finding them out. Sometimes to his delight—more often to his dismay. He was gathering experiences. He was adjusting himself to his environment. Soon necessity caused his sleeping mental powers to awaken. His past experiences, a treasure heap, were used eagerly by his brain. And man began to create things. Now, a master of type, he swelled with joy and produced more. His joy knew no bounds. But his body could not keep apace with his brain. His body existed only in the past and present—his brain began to dwell in the future. It dwelled there in a didactic fashion. Logic it knew not. Reason it had but little. It became wild at times—speculated—often it lost. Visions rolled into psychic existence, and regardless of their worth they were extolled to the multitudes both verbially and in script. If these visions materialized, the extoller was heralded as a prophet—a wise man. And as such he existed, continuing to see visions until he died a natural death or ceased to exist because some faction opposed him.

To-day man possesses things that his predecessor did not have. The sum total of all of the experiences of his ancestorage are his. He is adjusted to his environment. His brain has become organized and functions in a logical and sequential manner. The folly of unreasonable and untenable ideas are still pictured vividly before him. He has been taught that statements should not be made, predictions should not be enunciated unless they are backed by sound scientific reasoning, theory and fact. And the resultant of it all is that man can see the hypocrisy of idle thoughts and illogical prophesy. Now, he delves carefully into scientific theory and fact, ponders upon them, and logically reasons action and reaction. He attains the point where, as a result of his knowledge of natural law, he can predict with great accuracy the production of certain results provided certain things are done. He can predict with great accuracy the absolute evolution of a civilized race.

And so, is it any wonder that when these careful sages of science place their ideas, the reasons for them, and their inevitable prophesy on paper to be read by the critical world the world nods its head in complete approval—and smiles contentedly?

Purcell G. Schuhe,
3444 Liston Ave.,
Cincinnati, Ohio.

Progress and the Spirit of Scientifiction

THE spirit of scientifiction, whether or not the world in general recognizes it as such, is of paramount importance to the progress of civilization. In fact, when we define this spirit of scientifiction it is apparent that without it progress, to any appreciable extent, would be impossible. What, then, is the spirit of scientifiction? Merely a certain amount of definite knowledge plus keen imagination.

Undoubtedly, prehistoric man's first weapons were stones and clubs. One day, let us suppose, one of our primordial forbears grasped a sharp piece of flint, inflicting a deep cut in his finger. Probably he was not the first man ever to cut himself in this way, but he was different from the others in that he possessed the spirit of scientifiction. His imagination was active and slowly his undeveloped mind pieced together a story—one of the first scientifiction stories.

Not long since, he had seen his own brother, Ori the Strong One, killed by a sabre-toothed tiger. He remembered how Ori's throat had been torn by those long teeth. Although it was not nearly so serious a matter, his own finger had just been cut in a somewhat similar way. His brother had been armed with a stout club but it had proved almost worthless. It had scarcely bruised the powerful beast!

Up to this point, our prehistoric author's story contained only definitely known facts, but from there on his imagination came into play. He pictured himself being attacked by the tiger, but instead of having only a club for a weapon, he held in his hand a sharp piece of flint. As the tiger sprang, the man was ready with the upraised blade, and even as he was borne down by the force of the onslaught, he drove the keen edge into the beast's tawny throat. The thrill of victory was his!

The more the man considered this new idea of his, the more it gripped him. He imagined victories galore. He saw himself slaying all the fierce animals from which, under present conditions, man was forced to flee. In the joy of his newly found power, he hastened to tell his friends, but to his dismay they failed to become enthusiastic. No man could ever kill a tiger! Absurd! As is the case even to-day, the conceptions of a fertile imagination met with many scoffers and skeptics. But a few listened and pondered. As time went on, the plan was tried and the primitive knife met with a measure of success, especially in warfare with other tribes, and later with more formidable foes. Generations lived and died and the knife and hatchet came to be considered as necessities of life.

This simple illustration of progress has an analogy in our present age. In spite of the tremendous advance of science since prehistoric times, we are even to-day acquainted with only an infinitesimal fraction of all the wonders of our Universe. Not by the utmost stretch of the imagination could the discoverer of the knife conceive of the uses or even the very existence of shears, razors, reapers, and the hundreds of present-day devices depending upon the principles first brought to light by him. Neither can we of to-day hope to imagine the future developments of interplanetary flyers, death rays, atomic engines and the numerous other inventions described by our scientifiction authors.

Alfred H. Weber,
Box 374
Bedford, Mass.

The Work of Our Artists; Stories in the Quarterly

I've read every issue of AMAZING STORIES from first till last. Many of my friends request me to loan them these previous copies, but I would not for fear of spoiling my little library. I've read your *Discussions Department* in the monthly since it started. It is just as interesting as your stories. Till now I've remained in the background. In other words, I've been a spectator.

Some of your readers find it very easy to complain about the stories. I've read every story since the first issue and not one was to be complained about. The trouble with the complainers is that they see only one side of the question. They never think of turning the proposition around and looking at the other side. They haven't the power to think deep enough and reverse circumstances. They never asked themselvs if they can do any better.

Pardon me if I hurt your readers but as the old saying goes, "Truth will out." I've read and studied a bit of psychology and I find that it is just human nature to complain and criticize.

I'm a bit of an artist myself and I find that Paul is just the man for your pen sketches and drawings. He has the knack of working out the fantastic machinery in detail, and this is just the stuff necessary for your stories. Your new artist Mr. Lawlor is a wonderful designer, but he is a little green on scientific pictures. After a little time, I'm sure he'll break himself in. I like his style; he has that loose-free-pen-sketchy way. I suggest a few more pictures by both Mr. Paul and Mr. Lawlor. I like to study their work.

I have read the SPRING QUARTERLY and "The Nth Man," is a corker. Imagine a man two miles long. The science in it is truly astounding.

I'm glad to note that Mr. Wells is gaining ground among our readers after all the ill-favored discussions about him. "The Master Ants" is a remarkable story. I find that there is more truth than poetry in this story. We all know the intelligence of the ants. What is going to prevent them from ruling man some day?

"The Second Swarm," in the SPRING QUARTERLY needs some consideration. It is no layman's dream. Aviation is progressing by leaps and bounds. Birds are studied in flight. New types of planes are invented nearly every month. Who can dispute that within a few more centuries ships can be built a mile in length that can go through space from planet to planet in search of adventure, knowledge and better living conditions.

Samuel Simon,
1475 St. Marks Ave.,
Brooklyn, N. Y.

(We agree with you in what you say as to the interest of our *Discussions Department*. We think it is very interesting and valuable and our own private criticism is that those who contribute their letters to it are perhaps too complimentary. As for Mr. Wells gaining ground among our readers, he is well able to take care of himself. In his line, he is the most popular author in the world, probably. Privately, we think it will be a good while before machines are built to traverse inter-stellar space. If any are constructed, it would seem from present knowledge that they must be of the reaction type.—EDITOR)

Some Interesting Criticisms of Our Authors' Stories

Editor, AMAZING STORIES QUARTERLY:

In your Fall issue, there are one or two things with which I do not agree. In "Four Dimensional Transit" by Bob Olsen, he attempts to explain the fourth dimension. The only thing wrong about his explanations is that they are all wrong; he merely builds up an ununderstandable explanation on the example of two dimensions, since any object with the aforesaid dimensions is not a solid. The average reader, not able to comprehend his explanation lauds the author as having found the key to the fourth dimension. Now, I am a firm believer in the fourth dimension and, possibly a few hundred years from now, when the human race is doing things of which we may not even conceive, my theory will be proven. But with the present restraints the fourth dimension will never be evolved, at least, not in my age. If Mr. Olsen had put his tale in the future and not attempted to explain the fourth dimension in the manner he did, there would be no fault to find with it.

Now to go on—"The Gravity King" by Cleveland J. Ball does not come up to the scientifiction mark since it contains no science at all. The other three stories were excellent, especially "The World of the Giant Ants" by A. Hyatt Verrill, which I believe to be one of the best ever published in the QUARTERLY. His preceding story, "The King of the Monkey Men" was merely a rewriting of "The Boy Adventurers Among the Monkey Men."

James Suiter,
751 Bergen Street,
Jersey City, N. J.

(Your letter is very interesting and we believe that popular attempted explanations of the fourth dimension would generally fail. We are quite doubtful whether the average reader usually praises an author for explaining the Einstein theory. You state that you are a firm believer in the fourth dimension, and think that your theory may be proven in a few hundred years. Would it not be rather a slow progress of humanity if it took a few hundred years to prove a true theory? If we feel that the fourth dimension will never be evolved, at least not in this age, this feeling should not excuse any weakness in Mr. Olsen's attempt to utilize from the popular viewpoint, this scientific mystery, as it may be called. "The Gravity King" is based on low gravitation and on the possibility of annulling its action on a specific object. Some years ago there was a report of a scientist succeeding in slightly reducing the effect of gravity, so that under the specific conditions, an object would weigh less than it normally would. So there is a bit of science in this story. We are glad you like Verrill's story. He is a very high authority on ethnology and entomology—man and the insect.—Editor.)

Degeneration of the Race. Newton's Law of Action and Reaction.

Editor, AMAZING STORIES QUARTERLY:

I have been a constant reader of both the MONTHLY and the QUARTERLY, but this is the first time I ever attempted to criticize your magazine in any way.

I fear that you will think me something of a nuisance when I tell you the first thing I will criticize is your cover. Is there any possible way to change to a more conservative cover design without losing any of your readers? If so, I would look upon your changing the cover as a personal favor. I am rather tired of being classed with the type of reader, who devours such magazines as purvey "ghost stories."

To leave the cover and bring up the main point of this letter. I have just finished the fall edition of AMAZING STORIES QUARTERLY, and I found it interesting on the whole. There were some exceptions, however, or rather there was only one exception and that was the first story, "The World of Giant Ants" by A. H. Verrill. The story was much too long and I found my attention wandering before I had finished it. In short, the story was far below Verrill's standard. The second criticism I have to make is of your second story, "The Stenographer's Hands" by Dr. Keller. Although the story is interesting, as all of Dr. Keller's are, there is one thing I found wrong with it, and that is the ending. Any biologist knows that in attempting to breed a new race there is great danger of some fault being emphasized through interbreeding. This danger did not seem to be considered by the author in picking out the original specimens with which to start the experiment. At the end of the second century the stenographers were becoming epileptic. This is a disease which is inherited from one's parents and therefore for the descendent to become epileptics, the originators or one of the originators must have had the same disease.

I do not know whether this is criticism: I am writing about the point for my own satisfaction. In your third story there is a point where a rocket is fired off in order to utilize Newton's third law of motion. I always understood ether to be a vacuum and I wish you would explain how a force can react against nothing to form a counteraction in the opposite direction. I wish you would clear up this point for me.

Mr. M. Gelenter,
235 East 196th Street,
Bronx, New York, N. Y.

(We do not know what to add about our cover illustrations controversy. They are done by an artist whom we would find very hard to replace. They demand special treatment, and we can assure you that no pains are spared to make them correct. We have received such a quantity of letters in praise of Mr. Paul, the artist, that we feel that our readers have come to regard him as an essential part of our magazine. Any one who really takes in the cover-page illustrations will see that they are no more wild than are the stories themselves, and these have received many compliments. That the same thing does not suit everyone is shown by the "World of Giant Ants", which in the letter preceding this is highly praised in contrast to your view. Dr. Keller's stories are usually found interesting by most of our readers, and he gives much thought to them. We certainly cannot answer for the intellectual status of the so-called hero of Dr. Keller's interesting and ingenious story. We are very glad to get such letters as yours. Now departing from criticism. A rocket will react just as strongly or more so in a vacuum than in air. Newton's law is concerned with the reaction between two things only, and it is not dependent on air or other resisting substance. It is not the push against the air which repels the rocket, it is what the sportsmen would term the recoil, which does the work. The surrounding air has nothing to do with this, it merely prevents the rocket from going as fast as it ordinarily would.—Editor.)

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